Notices

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Product names mentioned herein are for identification purposes only, and may be trademarks and/or registered trademarks of their respective companies.

Macrovision Statement

If your computer has a DVD drive and an analog TV Out port, the following paragraph applies:

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

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Important Safety Information

Safety Instructions

Your system is designed and tested to meet the latest standards for safety of information technology equipment. However, to ensure safe use of this product, it is important that the safety instructions marked on the product and in the documentation are followed.

Always follow these instructions to help guard against personal injury and damage to your system.

Setting Up your System

- Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.
- Do not use this product near water or a heat source such as a radiator.
- Set up the system on a stable work surface.
- The product should be operated only with the type of power source indicated on the rating label.
- Insure that the electrical outlet you are using to power your equipment is easily accessible in case of fire or short circuit.
- If your computer has a voltage selector switch, make sure that the switch is in the proper position for your area.
- Openings in the computer case are provided for ventilation. Do not block or cover these openings. Make sure you provide adequate space, at least 6 inches (15 cm), around the system for ventilation when you set up your work area. Never insert objects of any kind into the computer ventilation openings.
- The computer product is equipped with a three-wire power cord to make sure that the product is properly grounded when in use. The plug on this cord will fit only into a grounding-type outlet. This is a safety feature. If you are unable to insert the plug into an outlet, contact an electrician to install the appropriate outlet.
- If you use an extension cord with this system, make sure that the total ampere rating on the products plugged into the extension cord does not exceed the extension cord ampere rating.

Care During Use

- Do not walk on the power cord or allow anything to rest on it.
- Do not spill anything on the system. The best way to avoid spills is to not eat or drink near your system.
- Some products have a replaceable CMOS battery on the system board. There is a danger of explosion if the CMOS battery is replaced incorrectly. Replace the battery with the same or equivalent type recommended by the manufacturer. Dispose of batteries according to the manufacturer's instructions. If the CMOS battery requires replacement insure that a qualified technician performs the task
- When the computer is turned off, a small amount of electrical current still flows through the computer. To avoid electrical shock, always unplug all power cables and modem cables from the wall outlets before cleaning the system.
- Unplug the system from the wall outlet and refer servicing to qualified personnel if:
  - The power cord or plug is damaged.
  - Liquid has been spilled into the system.
  - The system does not operate properly when the operating instructions are followed.
  - The system was dropped or the cabinet is damaged.
  - The system performance changes.

Replacement Parts and Accessories

Use only replacement parts and accessories recommended by manufacturer.

To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.

Do not use this product in areas classified as hazardous. Such areas include patient care areas of medical and dental facilities, oxygen rich environments, or industrial areas.

Battery Disposal

Do not put rechargeable batteries or products powered by non-removable rechargeable batteries in the garbage.

Contact your customer service representative for information on how to dispose of batteries that you cannot use or recharge any longer.

Follow all local regulations when disposing of old batteries.

Regulatory Compliance Statements

United States Users

FCC Part 15

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

Compliance Accessories: The accessories associated with this equipment are: shielded video cable. These accessories are required to be used in order to ensure compliance with FCC rules.

This device complies with Par t15 of the FCC Rules. Operation of this product is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by manufacturer could void the FCC compliance and negate your authority to operate the product.

FCC ID: A3LS760

FCC part 68 (applicable to products fitted with USA modems)

This equipment compiles with part of the FCC rules. On the back of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

This equipment uses the following USOC jacks: RJ11C

An FCC compliant telephone cord and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or promises wiring using a compatible modular jack which is Part 68 compliant. See Installation Instructions for details.

The REN is used to determine the quantity of devices which may be connected to telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by total RENs, contact the local telephone company to determine the maximum REN for the calling area.

If the terminal equipment causes harm to the telephone network, the Telephone Company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advanced notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment for repair or warranty information, please contact your local distributor or Samsung Electronics Corporation at (408) 544-5124. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

The user must use the accessories and cables supplied by the manufacturer to get optimum performance from the product.

No repairs may be done by the customer.

This equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs.

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided may not be a 900 number or any other number for which charges exceed local or long-distance transmission charges.)

In order to program this information into your fax machine, refer to your communications software user manual.

Canadian Users

Radio Interference Regulations (ICES-003)

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

DOC notice (for products fitted with an IC-compliant modem)

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operation, and safety requirements. The Department does not guarantee the equipment will operate to the users' satisfaction.

Before installing this equipment, users should make sure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

To avoid electrical shock or equipment malfunction do not attempt to make electrical ground connections by yourself. Contact the appropriate inspection authority or an electrician, as appropriate.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should make sure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

The **Ringer Equivalence Number** (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

Laser Safety

All systems equipped with CD and DVD drives comply with the appropriate safety standards, including IEC 825. The laser devices in these components are classified as “Class 1 Laser Products” under a US Department of Health and Human Services (DHHS) Radiation Performance Standard. Should the unit ever need servicing, contact an authorized service location.

Laser Safety Note:
Use of controls or adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure. To prevent exposure to laser beams, do not try to open the enclosure of a CD or DVD drive.

Power Cord Requirements

The power cord set (appliance coupler, flexible cord, and wall plug) you received with your computer meets the requirements for use in the country where you purchased your equipment.

Power cord sets for use in other countries must meet the requirements of the country where you use the computer. For more information on power cord set requirements, contact your authorized dealer, reseller, or service provider.

General Requirements

The requirements listed below are applicable to all countries:

- The length of the power cord set must be at least 6.00 feet (1.8m) and a maximum of 9.75 feet (3.0m).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
- The power cord set must have a minimum current capacity of 7 A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/ IEC 320 Standard Sheet C13 connector, for mating with appliance inlet on the computer.

Country-Specific Power Cord Set Requirements

The requirements listed below are applicable to the specific country listed:

Country	Accrediting Agency	Applicable Note Numbers
Australia	EANSW	**1**
Austria	OVE	**1**
Belgium	CEBC	**1**
Canada	CSA	**2**
Denmark	DEMKO	**1**
Finland	FIMKO	**1**
France	UTE	**1**
Germany	VDE	**1**
Italy	IMQ	**1**
Japan	JIS	**3**
The Netherlands	KEMA	**1**
Norway	NEMKO	**1**
Sweden	SEMKO	**1**
Switzerland	SEV	**1**
United Kingdom	BSI	**1**
United States	UL	**2**

Notes:

1. Flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

2. Flexible cord must be Type SVT or equivalent, No.18 AWG. Wall plug must be a two-pole grounding type.

3. Appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. Flexible cord must be Type VCT or VCTF, 3-conductor, 0.75 mm² conductor size. Wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15 A, 125V) configuration.

Using Your Documentation

Congratulations on your purchase of a notebook computer. Whether you are new to using a portable computer or are an experienced user, this user's manual can help you get the most from your computer.

Manual Documentation Conventions

Information Icons

Three icons and their associated messages appear in this manual. The information icons are placed before the step/information they apply to:

A warning indicates the possibility of personal injury.

A caution warns you of possible damage to equipment or data.

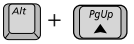
A note informs you of special circumstances.

Keyboard Conventions

Keys that you need to press to perform certain functions are displayed in the manual using a small graphic of the button. For example:

indicates the control key (**Ctrl** on the keyboard).

If you need to press two keys at the same time, the key names are shown joined by a plus sign. For example:



means that you should press the **Alt** key and hold it and then press the **Pg Up** key.

CD-ROM Device Naming Convention

In many installation programs you will have to get a program from the CD-ROM device. The program installation sequence assumes that the CD is drive d:\, however this is not always the case. The name of the CD-ROM drive is the letter following the letter assigned to your last HDD. For instance, if you have one HDD with two partitions, the HDD is drives C: and D: and the CD-ROM drive is then drive E.

Touchpad Conventions

You may be asked to click or double-click on items on the display screen. As a general note the touchpad actions act much in the same way as a wheel mouse any differences are explained fully.

The object that needs to be clicked upon will be displayed in **Bold** text or shown in a small figure such as the **"Start Button"** shown on the right =>.

Table 1. Touchpad Click Conventions

Action	Process
Click	Depress the touchpad left button and release
Double-Click	Quickly click the left touchpad button two times

If you are new to using computers, see "Glossary". The "Glossary" explains general computing terms that are used in this manual and tells you about some of the differences between notebook computers and desktop computers.

Almost all "Windows" programs will display the name/function of a button or icon if you place the touchpad pointer on the item you want information about.

Software User Documentation

Your computer is shipped from the factory with several software programs installed. The software may include its own online or printed documentation. Refer to the documentation or the Help options in the software for more information.

The figures and illustrations in this manual may not be identical to those on your system.

Introducing Your Computer

Your lightweight portable notebook computer includes many features to meet your computing needs at home and/or on the road. The computer is a very slim lightweight notebook computer with a docking station that has peripheral devices that allow it to perform all of the functions of a desktop computer.

Where Everything Is

The following sections, *PC Equipment Locations* and *Docking Station Equipment Locations* will explain the details of the notebook computer and the docking station as well as other basic operations to dock and undock the computer.

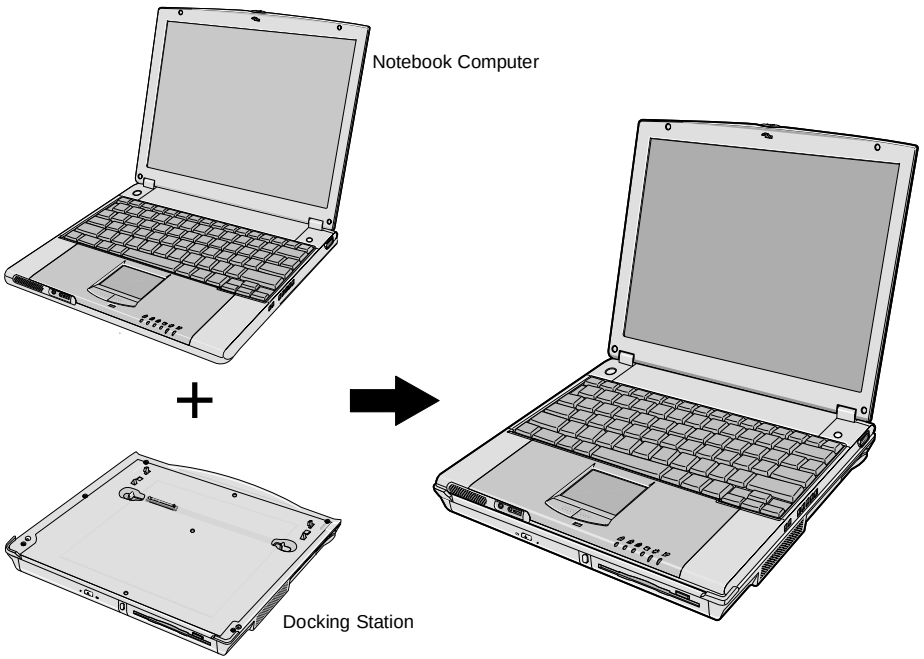


Figure 1. Notebook & Docking Station

PC Equipment Location

The figures in this section show you the location of important items on the computer.

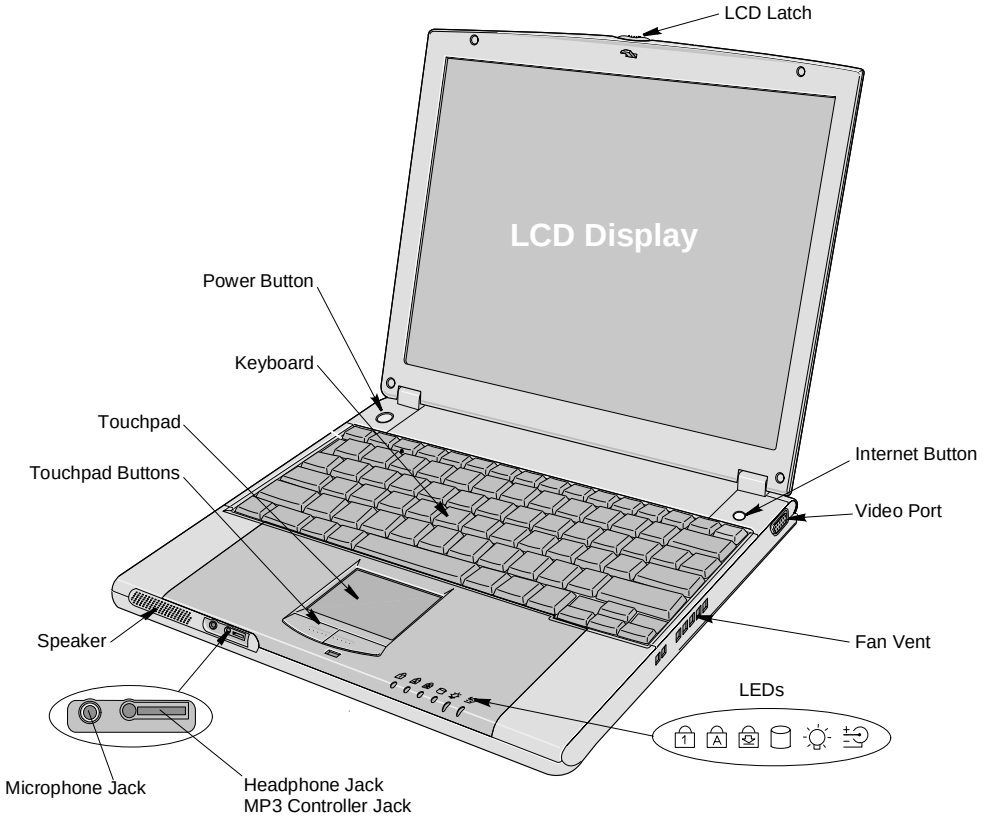


Figure 2. Front/Right View of PC

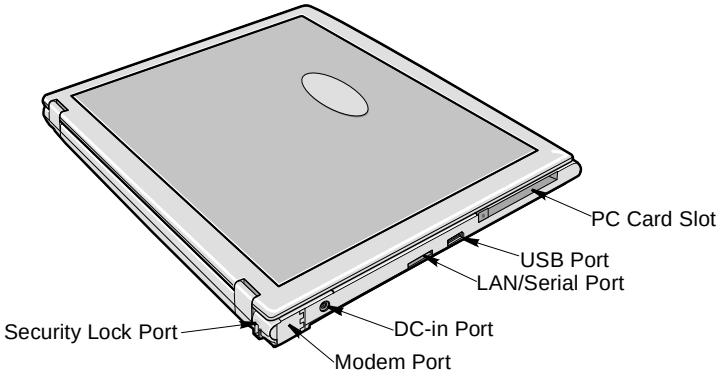


Figure 3. Back/Left View of PC

The figure below is the bottom view of the PC without the Docking Station attached.

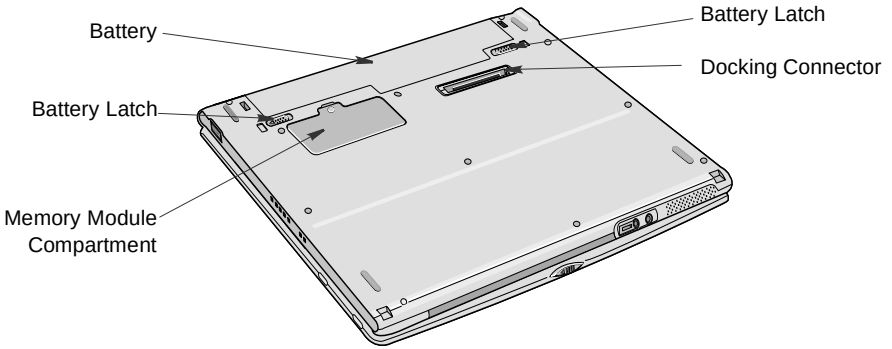


Figure 4. Bottom View of PC

Docking Station Equipment Location

The figures in this section show you the location of important items on the docking station. See “Using the Multi-Bays in the Docking Station” on page 33.

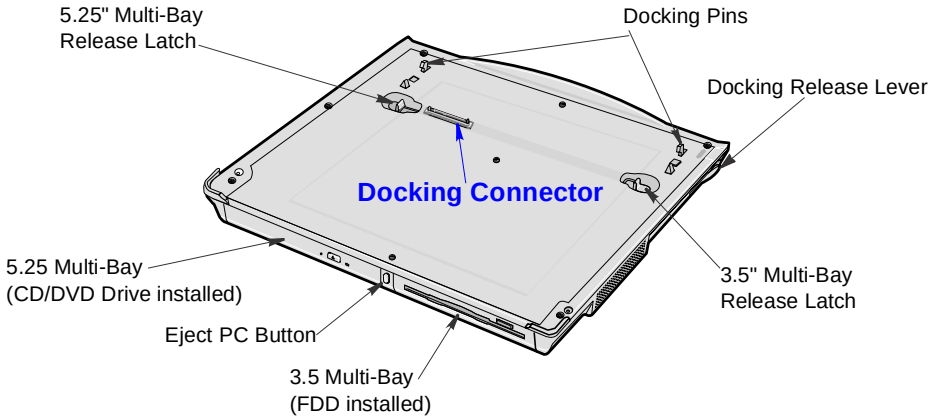


Figure 5. Docking Station Front/Right/Top

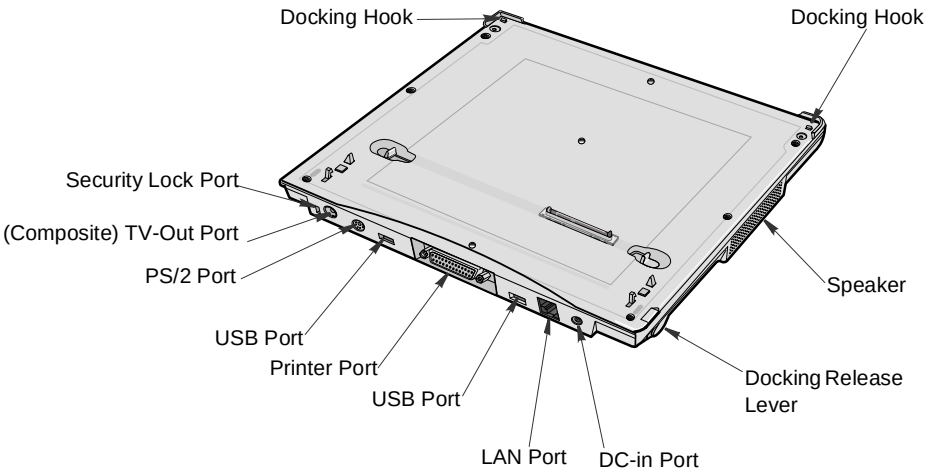


Figure 6. Docking Station Top/Back/Left

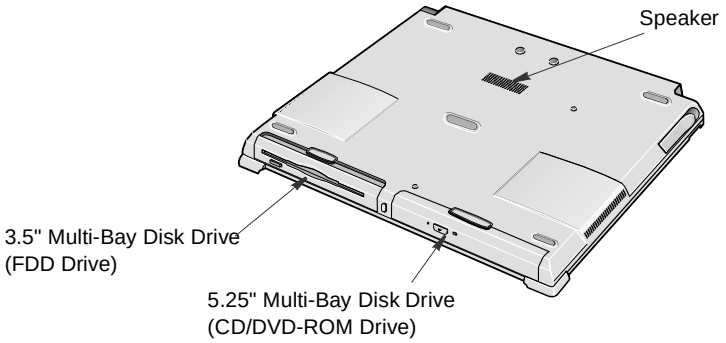


Figure 7. Docking Station Bottom

Docking/Undocking your Computer

The docking station allows you to use this system as a desktop PC.

Connect the AC adapter to the docking station when it is installed to the computer.

Docking your Computer

You may dock your computer while the computer is off or on, however the preferred and safer method is with the power off.

To install your computer into the docking station with the power off, complete the following steps:

1. Disconnect the AC adapter from the system.
2. Place the front part of a system on two hooks of the docking station.
3. Press the back part of a system until it clicks into the docking station fully.

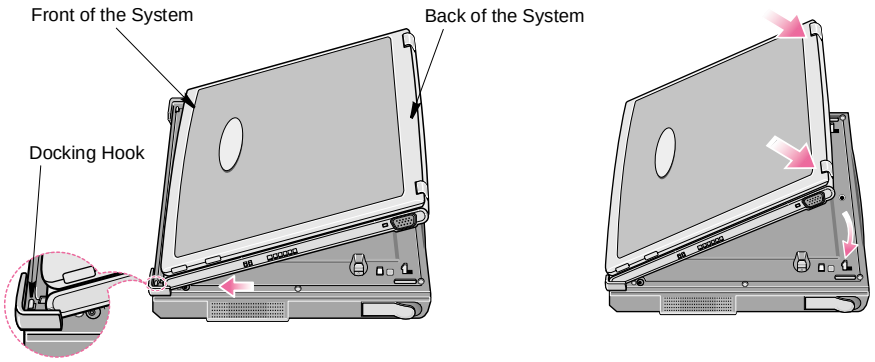


Figure 8. Docking Sequence

To **dock your computer with the power on** simply place the computer on the docking hooks and press down on the area above the keyboard.

Dock Change

When the docking station is connected properly then the "Dock Change" message shows. When the "Dock Change" message disappears you may use the system. Press the system on both sides not the middle to ensure that the docking connector is completely mated to the system.

Undocking your Computer

To remove your computer from the **docking station with the power off**, complete the following steps.

1. Turn off the system.
2. Disconnect the AC adapter.
3. Grab the two docking release levers and pull them out until they click. The computer will pop up approximately 1cm.
4. Tilt the system up at the back.

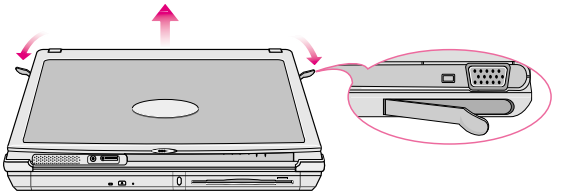


Figure 9. Docking Station Release Lever Operation

5. After tilting remove the system by sliding/lifting out toward the back of the docking station.
6. Connect the AC adapter to the system.

To remove your computer from the docking station with the power on, complete the following steps:

1. Press the Eject PC button on front of the docking station for one second.
2. When “Dock Change” message shows on the screen, pull the two release levers outward until they click and the computer pops up approximately 1cm.
3. Remove the system.
4. Attach the AC adapter to the system.

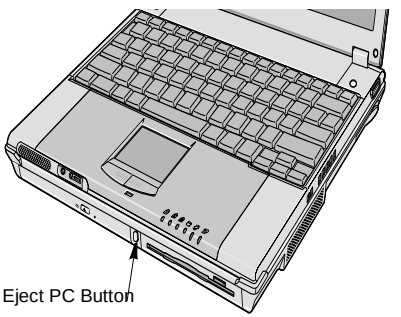


Figure 10. Undocking Computer (Power On)

Do not detach the computer if battery power is less than 20% power. The system may crash and you will lose any unsaved data.

Use **Start** > **Eject PC** instead of the Eject PC button if the "Eject PC Button" does not work and the dock change message is not displayed.

Using Your Computer for the First Time

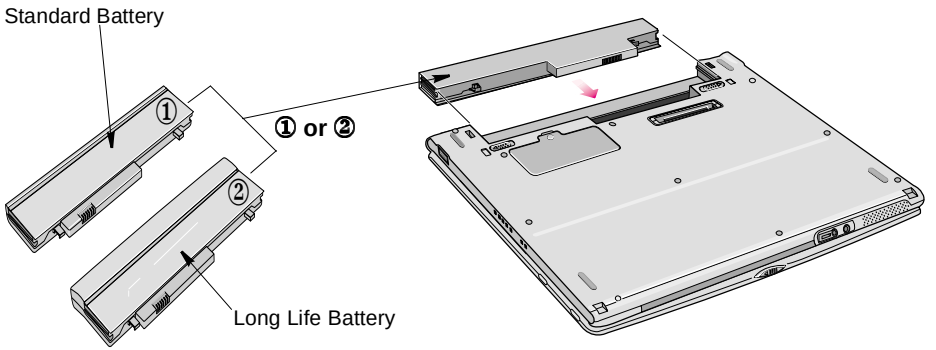
This section gives you detailed information on using your computer for the first time.

Installing the Battery

The first step in using your notebook computer is to determine the normal use for your computer. Two batteries (Standard and Long Life) come with the computer and both go into the same slot. The standard battery may be used whether the computer is in the docking station or not. the long life battery may only be used when the PC is not in the docking station.

Ensure that both battery latches are slid fully toward the center of the computer.

The long life battery cannot be used with the PC in the docking station.



AC Adapter

Your computer runs on power from the battery in the computer or from an electrical outlet. The first time that you use your computer, fully charge the battery using the AC adapter, see Figure 11.

To attach the power cord complete the following:

Power Cords:
Many countries have different power cord configurations. Your computer should be supplied with the correct one for your area. If not contact the supplier.

1. Plug the AC adapter into the power connector on the back side of the computer.
2. Connect the power cord to the AC adapter and then to an electrical outlet.

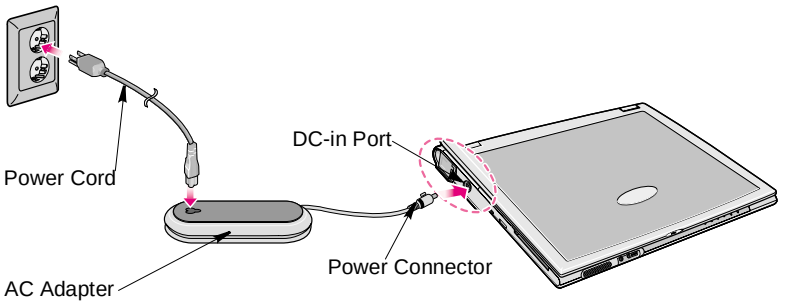


Figure 11. Connecting the AC Adapter

The power connector may be plugged into either the computer or the docking station. The preferred method when docked is to plug into the docking station.

The battery starts charging as soon as you plug the power cord into an electrical outlet. The battery charges faster if the computer is turned off during charging.

Ensure you charge the battery fully the first time you use it.

See "Using the Battery" on page 46 for more information on using your computer's battery.

Turning On the Computer

To turn on the computer's power for the first time:

1. Slide the LCD latch, located on the front of the cover to the right.
2. Lift up the LCD display.
3. Press and then release the power button (Figure 12).

The power LED is on when the computer's power is on.

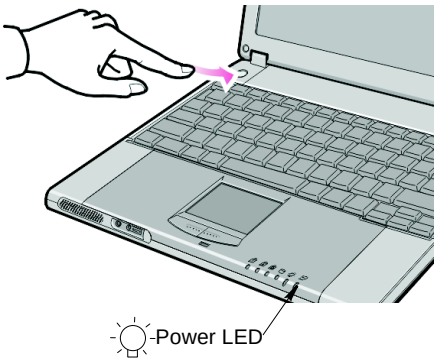


Figure 12. Turning on the Computer's Power

Initial computer startup

The first time you start your computer you will see the operating system registration screen. There are several screens in the registration process. Simply read each screen and follow the simple directions. You must complete this process in order to use your computer. A tutorial is provided if you require it.

Turning Off Your Computer

Prior to shutting down your computer ensure all of your data and current work are saved. The shutdown process will ask if you wish to save your work, however by saving your work first the shutdown process is quicker.

To turn off the computer, complete the following steps:

1. Click Start on the taskbar.
2. Click **Shut Down**.

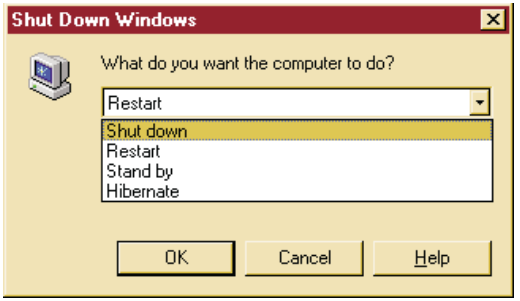


Figure 13. Windows Shutdown Pop-up Window

3. Select **Shut down**.
4. Click **OK**.

If you need to restart your computer after software (re)installation or because it is not responding select the **Restart** option in step 3 above instead.

If the system does not power off, then press and hold the power button for over 4 seconds.

See "Using Power Management Options" on page 57.

System problems requiring a computer restart (Cold Boot):
Do not perform a cold boot unless your keyboard and touchpad have no effect and you cannot perform a warm boot/software restart.

When you perform a cold boot, you lose all data since it last saved to a storage medium, i.e. Hard drive, Floppy disk.

You can also perform a soft boot by saving your files and pressing Ctrl + Alt + Delete to pop-up the windows "Close Program" window. Click on the Shut Down button.

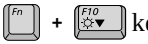
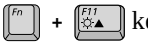
You can perform a cold boot by pressing the power button for more than 3 seconds to turn the computer off, waiting more than five seconds, and then pressing the power button to turn the computer on.

The power button has several functions other than just turning on and off your computer, see "Using Power Management Options" on page 57.

Using the LCD Display

This section will discuss using/changing the LCD display and its defaults:

The LCD display brightness adjustment is divided into 8 levels.

- The  key combination decreases LCD brightness.
- The  key combination increases LCD brightness.

The LCD display default settings are:

- Level 6 when operating on AC power.
- Level 4 when operating on battery power.

LCD Cleaning:

Cleaning the LCD display should only be done with a soft cloth dampened with denatured alcohol.

Even if you change the default LCD display brightness settings, the defaults listed above will be restored once you power off and then back on.

Notice: The limits of LCD manufacturing technology allow a maximum of 10 abnormal/bad pixels.

Tips for Using Your Computer

The following information helps you avoid potential problems as you use your computer:

Do not try to disassemble your computer. Opening the system chassis voids your warranty. Only an authorized manufacturer service center can replace or add any parts inside the chassis.

- Follow all the instructions and cautions in your computer user documentation.
- The LCD display has a polarized surface and can be damaged easily. To prevent damage, avoid touching the LCD display screen.
- Use only approved AC adapters, auto adapters, memory modules and other options.
- Because a notebook computer is small and has restricted air flow around components, it is more likely to overheat than a desktop computer. A fan inside your computer runs when needed to help eliminate heat. Make sure the fan vent on the right side of your computer is not blocked when you use the computer. (See Figure 2 on page 4 for the location of the vent.) Occasionally check the vents and remove any accumulated dust on the outside.
- Avoid using or storing the computer in extremely hot or cold areas, such as a car on a hot day. Keep the computer away from heaters and out of direct sunlight. Exposure to excessive heat may damage computer components.
  If you have left your computer in a hot place, let it cool down slowly to room temperature (with the LCD panel open) before using it.
- Do not remove the memory-module compartment door, or try to install a memory module when the computer is on. (See Figure 4 on page 5 for door location.)
  (For information on installing a memory module, see “Installing a Memory Module” on page 73.)
- Set up your computer work area to avoid physical strain. Sit with your back straight and supported by your chair. Adjust your chair or work table so that your arms and wrists can remain in a relaxed position, parallel with the floor. Avoid bending or twisting your wrists as you work. Your hands should “float” slightly above the keyboard. Refer to a book on office ergonomics for more information on setting up your work area.
- Take frequent breaks from working at the computer to rest your eyes and stretch your muscles.
- Remember to save your data files frequently and to make backup copies of your files.

Air Travel

If you are travelling by air, follow these tips:

- Take the computer with you as carry-on luggage. Do not check the computer with your baggage.
- Allow the computer and disks to go through the X-ray security devices. Do not hand-carry disks through the walk-through metal detectors, which can cause loss of data.
- Make sure that the battery is charged or the power cord is easily accessible. You may be required to turn on the computer for airport security personnel.
- Be prepared to turn off the computer during take off and landing.

Locking your Computer

As a precaution when you are travelling you should keep your computer as safe as possible. An option to do this is the *Security Lock System*. Follow the *Security Lock System* manufacturers instructions for specific installation and use. The following figure shows generally how to use the lock.

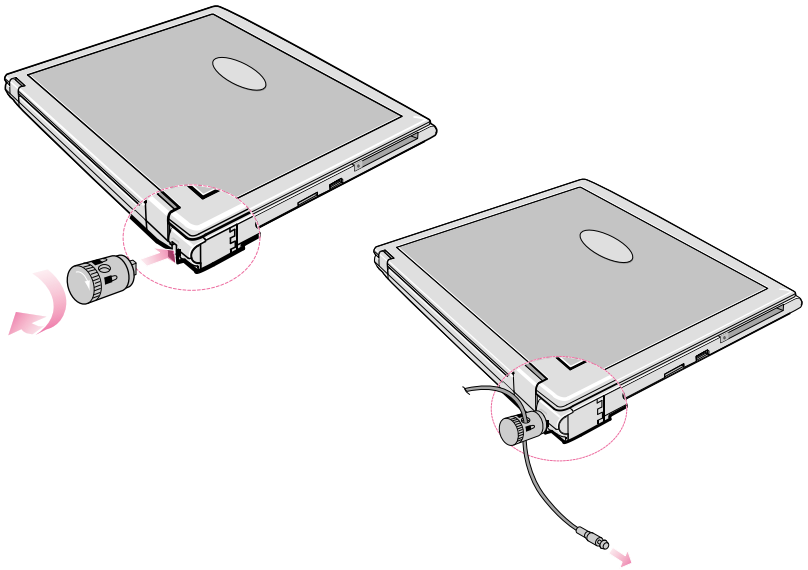


Figure 14. Security Lock System

Handling Spills

Sweet liquids leave a sticky residue that may jam the keyboard despite your efforts to dry it.

Some liquids damage the polarized LCD screen. If your screen is damaged, contact your authorized manufacturer's service center for a replacement.

Do not spill anything on your computer. The best way to avoid spills is to not eat or drink around your computer. If you do spill something on your computer, turn it off and unplug it immediately, then do the following:

- If you spill liquid on the keyboard, drain as much of the liquid from the keyboard as possible. Be careful not to let the liquid drip onto the LCD panel. Allow the system to dry for several days before trying to use it.
- If you spill liquid on an external keyboard or keypad, unplug it and drain as much of the liquid as possible. Allow the keyboard to sit at room temperature for a full day before trying to use it.
- If you spill liquid on the LCD panel, clean it immediately with a soft cloth and denatured alcohol. Do not use water, window cleaner, acetone, aromatic solvent, or dry, rough towels to clean it.

Using the Keyboard

Your computer has an 81-key keyboard (Figure 15). By pressing designated key combinations, you can have access to all the key functions of a full-sized keyboard.

Keyboard configuration is different from one country to another, however the operation of the keys and key combinations remain the same.

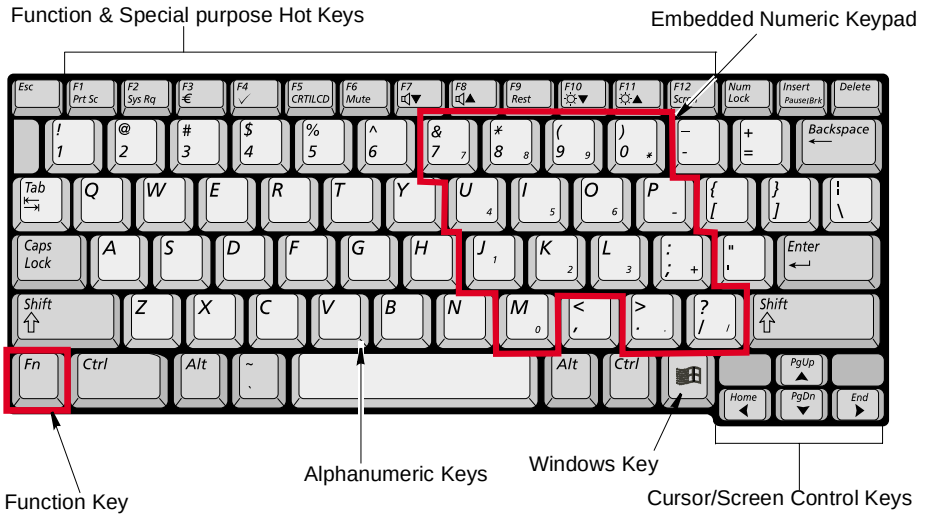


Figure 15. US Keyboard

Although the layout of the keys on your computer's keyboard is different from that on a desktop computer's keyboard, the keyboard feels like a full-sized keyboard when you use it.

The keys on the keyboard can be grouped into the following categories:

- Full-sized Alphanumeric typewriter keys are arranged like a standard typewriter keyboard [QWERTY] and are used for text entry. The Windows key opens Windows menus and performs other special functions.
- F1 to F12 and the Cursor/Screen Control keys, when pressed together with Fn key, enable special functions.

The F1 to F12 keys are assigned to different functions depending on the program in use, however the F1 Prt Sc key is usually assigned to program help.

- Cursor and Screen control keys move the cursor. They may perform other functions, depending on your software.

Do not allow liquid to drip into the keyboard or you may damage the keyboard.

To clean the computer keyboard, use slightly damp cotton swabs. Scrub the keys and the surface around the keys.

Using the Numeric Keypad

Your keyboard includes a numeric keypad, which is a group of keys that you can set to type numbers and mathematical symbols, such as the plus sign (Figure 16). A number or symbol on the right corner of each keypad key shows its numeric function.

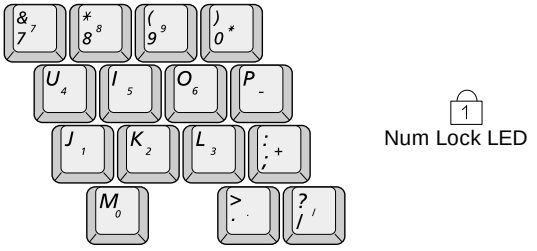


Figure 16. Numeric Keypad & Numlock LED

Press Num Lock to turn on the embedded numeric keypad. The numeric functions of the keypad are enabled and the Num Lock LED turns on. (See "Reading the System Status LEDs" on page 26 for the location of the Num Lock LED.)

While the numeric functions are enabled, you can temporarily return a key to its normal function by pressing Fn and the key. For example to type the letter *m*, press Fn + M 0, this operation displays the letter **m**.

To turn the numeric keypad off, press Num Lock again. The Num Lock LED turns off.

Using Special Function Keys

The function key activates special functions when it is pressed in combination with another keys. Table 2 shows the special key combinations.

Table 2. Description of Special Function Key Combinations

Fn **Key Combinations**	**Key Name**	**Key Function**	
Fn + F1 Prt Sc	F1 Prt Sc	Print screen:	Takes a picture of the open screen, which you can paste into many graphics programs.
Fn + F2 Sys Rq	F2 Sys Rq	System request:	Reserved for use in software programs.
Fn + F3 €	F3 €	Euro key:	This key combination can generate Euro Mark € as other Eurokey.
Fn + F4 ✓	F4 ✓	Magic keyboard:	Gives the user the ability to quick launch a program using the **Magic keyboard** key combination. Windows Calculator is the default program.
Fn + F5 CRT/LCD	F5 CRT/LCD	CRT/LCD:	Switches the display between the LCD, the external monitor, and simultaneous display on both the LCD and the external monitor.
Fn + F6 Mute	F6 Mute	Mute:	Turns the audio output on and off.
Fn + F7 🔉▼	F7 🔉▼	Volume down:	Decreases the audio volume.
Fn + F8 🔉▲	F8 🔉▲	*Volume up:*	Increases the audio volume.
Fn + F9 Rest	F9 Rest	*Rest:*	Puts the computer into Suspend mode. To resume normal operation, press the power button. (See “Power Management” on page 47.)
Fn + F10 ☼▼	F10 ☼▼	Brightness down:	Decreases the LCD brightness.
Fn + F11 ☼▲	F11 ☼▲	*Brightness up:*	Increases the LCD brightness.
Fn + F12 Scroll	F12 Scroll	*Scroll:*	In some applications, sets the cursor-control keys to scroll the page up or down while the cursor position does not change. Pressing key combination again turns off the scrolling function.
Fn + Home ◀	Home ◀	*Home:*	In some applications, moves cursor to the start of the line.
Fn + PgUp ▲	PgUp ▲	*PgUp:*	In some applications, moves cursor up one screen, not necessarily a full page.
Fn + PgDn ▼	PgDn ▼	*PgDn:*	In some applications, moves cursor down one screen, not necessarily a full page.
Fn + End ▶	End ▶	*End:*	In some applications, moves cursor to the end of the line.

When you press a function key combination, the system sound may be temporarily muted.

Internet Quick Start Button

Use the internet quick start button to start your connection to the internet just by pressing one button.

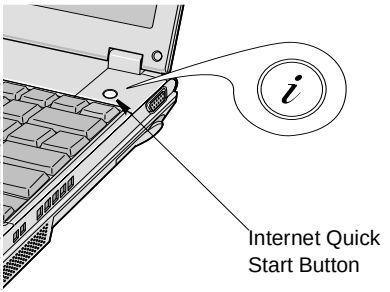


Figure 17. Internet Explorer Quick Start Button

User Defined Keys (Magic Keyboard)

You may program the Fn + F4 key combination to start any program you have installed on your computer. By default the Windows calculator is assigned to the **Magic Keyboard** key combination.

To reprogram the **Magic Keyboard**, follow the steps below:

1. Double-Click icon on the Windows taskbar or click **Start** > **Settings** > **Control Panel**.
2. Double-Click icon.
3. Select **User Key** from the drop down menu.
4. Use the **Browse** button to locate the program you wish to assign to the **Magic Keyboard** key combination.
5. Click on your program choice to select it.
6. Click **OK**.

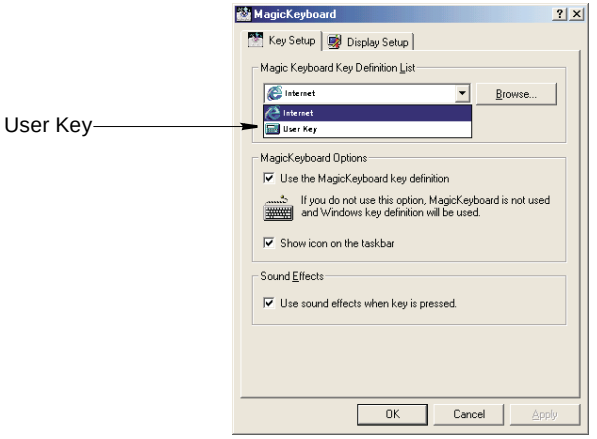


Figure 18. Magic Keyboard Program Interface

7. Click **OK** to close window and complete programming the **Magic Keyboard**.

You may also program the internet button to open the internet browser program you wish to use.

Using the Touchpad

Your computer is equipped with a touchpad, which is an integrated-pointing device that is used to perform standard mouse functions (Figure 19). The touchpad is an advanced and reliable pointing device that works with a touch of your finger.

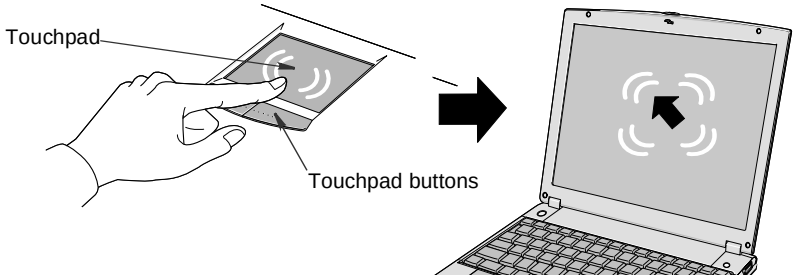


Figure 19. Touchpad Operation

Touchpad Precautions:

Do not use sharp, magnetic or heavy items on your touchpad doing so may cause damage.

Press on the touchpad gently. The touchpad responds to light pressure.

The following sections will basically explain how to use the touchpad. Table 3 lists the general actions associated with the touchpad.

Table 3. Touchpad Click Conventions

Action	Process	Comment
Click	Depress the touchpad left button and release	This will cause a process to begin
Double-Click	Quickly click the left touchpad button two times	This will cause a process to begin
Click-Hold	Depress the touchpad button and do not release	This is used to move/drag objects to new locations
Right Click	Depress the touchpad right button and release	This is usually used to obtain information about an object or start a process

PS/2 Mouse:

You may change the setup in **Setup** > **Advanced Menu**

Disabled prevents both the touchpad and external PS/2 port from functioning. **Single mouse** (default) enables the external PS/2 port or the touchpad, and external PS/2 port has priority. **Dual Mouse** allows the use of both the touchpad and PS/2 port.

Double-Click/Tap

Select the window or icon by tapping once on a touchpad. You can start program process in the window by double tapping the touch pad quickly or you can use the touchpad buttons.

Drag (Move)

To move a window to change the view on the desktop, complete the following:

1. Click the **window title bar** or **icon** in the bottom of the window which you want to drag using the touchpad.
2. Press the left touchpad button and hold it.
3. Drag the window using the touchpad.

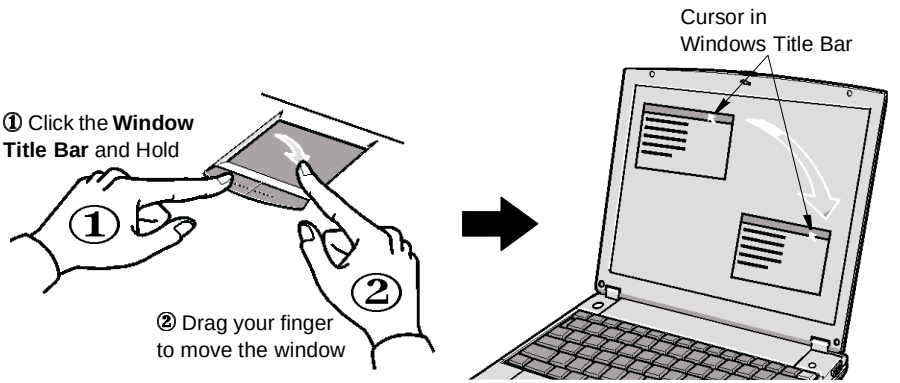


Figure 20. Dragging a window

Area or multiple item selection:

The drag function may be used to select an area or multiple items in an area by clicking in one area and then dragging to create a selection window. The items inside the window will be selected.

Scroll

The touchpad has a scroll function. Scroll along the right edge of the touchpad to scroll up and down. Scroll along the bottom edge of the touchpad to scroll right and left. However, this function may not work in some programs.

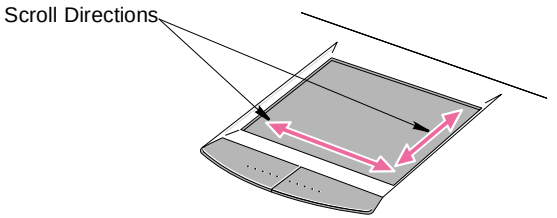


Figure 21. Scrolling using the touchpad

Touchpad Buttons:

You can use the buttons below the touchpad in the same way you would use standard wheel mouse buttons. For more information on these features and other features supported by your mouse driver such as button assignment, see the Mouse properties in the Control Panel.

Reading the System Status LEDs

System Status LEDs show the status of computer functions.

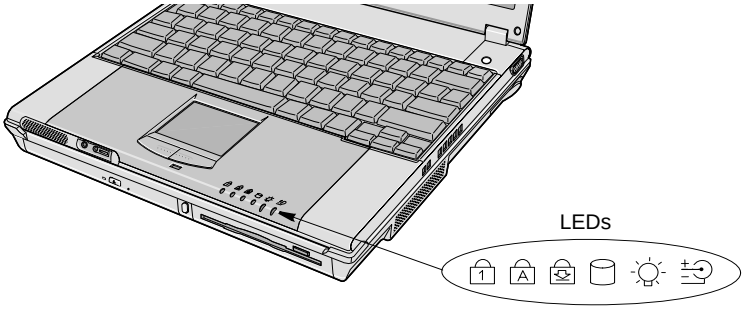


Figure 22. System Status LEDs

Table 4. LED Functions

LED	Name	Function
	Num Lock	Changes a portion of the keyboard to a numeric keypad. See “Using the Numeric Keypad” on page 19.
	Caps Lock	Changes all alpha or letter input into capital letters. No changes occur to numeric and special keys.
	Scroll Lock	Scroll lock in certain software.
	HDD	Using Hard disk.
	Power	Green - System power on. Blinking - Standby mode.
	Battery Status	Green - No battery pack installed/battery fully charged. Amber - Charging.

Connecting to the Internet

This section explains how to connect you to the internet. For program details on how to establish the connection contact the Internet Service Provider [**ISP**] or system administrator [**SysAdmin**].

Installing a Modem Cable

Before you can obtain information on the Internet or send e-mail you must verify the modem drivers are installed and connect the modem cable, See "Using the Modem" on page 28.

To connect the modem cable. follow the steps below:

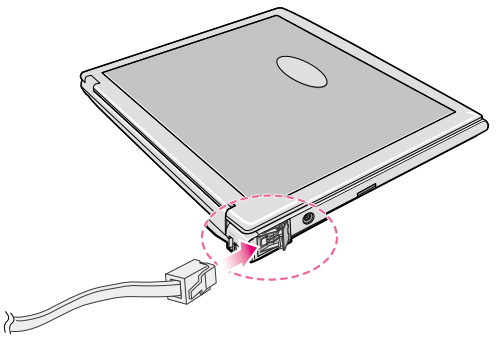


Figure 23. Modem Cable Installation

1. Open the modem cable door located in the back left portion of the computer.
2. Plug the modem cable into the Modem port.
3. Contact your Internet Service Provider to obtain information required to make the connection in your area.
4. After the cable is connected create a "Dialup" connection by clicking **Start** > **Settings** > **Dial-Up Networking**.
5. Double-Click icon to pop up the connection wizard.
6. Follow the instructions in provided in the **Make New Connection** wizard.

Using the Modem

Your Notebook computer will have a Modem/LAN installed in your computer.

Precautions Before Use

If you connect the modem to a digital phone line, the modem may be damaged.

DOS support

Windows Me does not support pure DOS mode and the modem does not support a DOS box in Windows. So you can not use a communication application using in DOS.

Using the Modem on a PBX system

If you use a simple terminal program:

Type the “ATX3&W” or “ATX3” command as an initialization command.

If you use a Windows Communication Program:

Follow the instructions below.

1. Click **Start** > **Settings** > **Control Panel**.
2. Double-Click icon.
3. Click **Properties** in the **General tab** section.
4. Check off “Wait for dial tone before dialing” check box in the **Connection tab** section.
5. Click **OK** to close the dialog box.
6. Click **OK** to close “Modem Properties” dialog box.

MODEM Notes:

1. In the US due to FCC limitations, speeds of 53kbps are the maximum permissible transmit power levels during download transmissions. Actual data speeds will vary depending on line conditions.
2. In order to use the 56K feature, be sure to check if the standards supported by the on-line service provider and the modem are identical.
3. If you use a PBX phone system, you can not connect using the 56K mode due to line loss.

Installing a LAN Cable

Before you can obtain information on the Internet, send e-mail or transfer files to or from another computer you must (re)install the LAN drivers, see “Windows Me LAN Driver (Re)Installation” on page 85. There are two ways to hook up to a LAN. You may plug directly into the back of the computer or use a LAN cable adapter.

To install the LAN cable to the back of the computer simply plug in the cable in the slot in the back of the computer or you may also use the LAN adapter cable to access the LAN. Simply plug the adapter cable into the LAN/Serial slot on the left side of the computer.

To install the LAN cable complete the following steps:

1. Plug the LAN cable into the LAN port in the back of the computer or into the portable LAN cable connector.

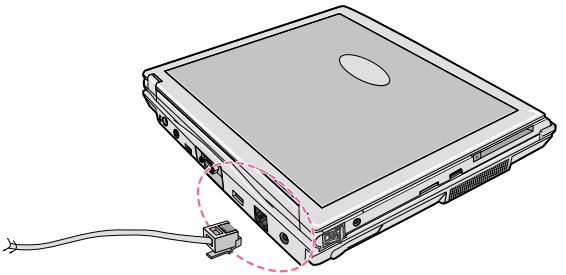


Figure 24. LAN Cable Installation (Back/Left)

2. Contact your **SysAdmin** to obtain information required to make the connection in your area.
3. After the cable is connected create the connection by clicking on **Start** > **Settings** > **Control Panel**.
4. Double-Click icon to pop up the network connection window.
5. If you require further assistance to connect to your network, contact your **SysAdmin**.

Portable LAN cable:

You may also connect to the LAN using the portable cable that plugs into the port provided on the left side of the computer.

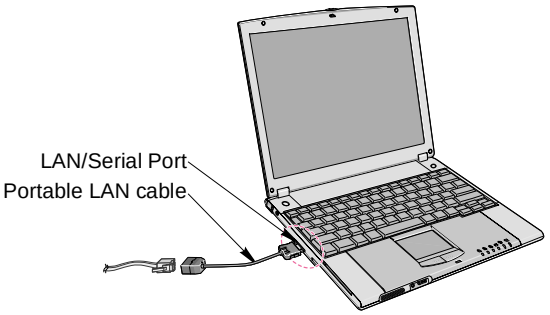


Figure 25. Using the Portable LAN Cable

Configuring Network Environment

1. Complete the installation of the Network Adapter Driver.
2. Double-Click icon in the control panel.
3. Click **Network Configuration tab**, then ensure that the **Samsung SEM-2100iL MiniPCI LAN Adapter** is installed.

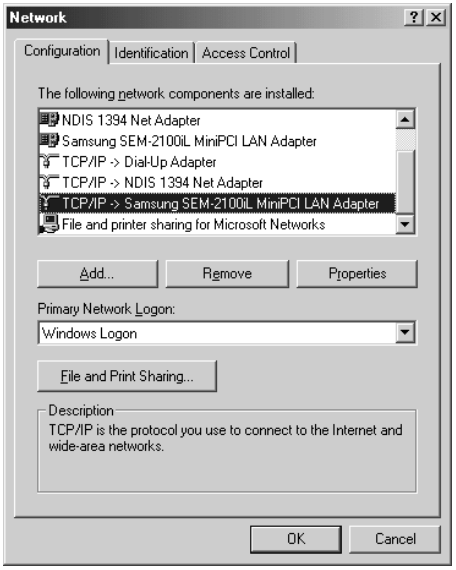


Figure 26. Installing the LAN Driver

4. Select **TCP/IP -> Samsung SEM-2100iL MiniPCI LAN Adapter** in the list of network components in the installed list.
5. Click **Properties**. The TCP/IP Properties window opens.
6. Click **IP Address** tab.
7. Select **Specify an IP address** and then enter your **IP address** and the appropriate **subnet mask**. If you use a DHCP server, select **Obtain an IP address automatically**.
8. Click **Gateway** tab.

9. Enter gateway address in the **New gateway**.
10. Click **Add**. If you use DHCP server, this process is not needed.
11. Click **DNS Configuration** tab.
12. Select **Enable DNS**.
    - Enter host name in the **Host**.
    - Enter domain name in the **Domain**.
    - Enter DNS server address in the **DNS Server Search Order**.
13. Click **Add**. If you use DHCP server, this process is not needed.
14. Click **OK** when you finish the TCP/IP set-up.
15. Click **Add** from the Network dialog box.
16. From the **Select Network Component type** dialog box, select **protocol**.
17. Click **Add**.
18. From the Select Network Protocol dialog box, select **Microsoft** in the Manufactures list and then select **IPX/SPX-compatible Protocol**.
19. Click **OK**.
20. Repeat steps 15 to 17. Select Microsoft in the Manufactures list, and then select **NetBEUI**.
21. Click **OK**.
22. In the Network window, click **File and Print Sharing**. Select both check boxes, then click **OK.**
23. Click **Network Identification** tab, type in anything you wish to identify this computer in **Computer Name**, **Workgroup**, **Computer Description**. Keep in mind that each **Computer Name** is unique on a network.
24. When you finish the network set-up, click **OK** from the Network dialog box.
25. Restart your computer to update the system.

Using the Multi-Bays in the Docking Station

Your computer includes the docking station that holds a 5.25" and a 3.5" device in the two multi-bays. Below is a listing of the device types you may install in your docking station.

The default system is purchased with CD/DVD-ROM and FDD devices.

5.25” Devices:	CD-ROM drive	DVD-ROM drive	CD-RW drive
3.50” Devices:	Zip (250Mb) drive	2nd HDD pack	FDD

Changing Devices

This section will discuss changing the 5.25" and 3.5" devices.

The multi-bay is the portion of the docking station where you change devices. See Figure 5 on page 6.

Changing a 5.25” Device

To change from one 5.25” device to another simply follow the steps below (Figure 27).

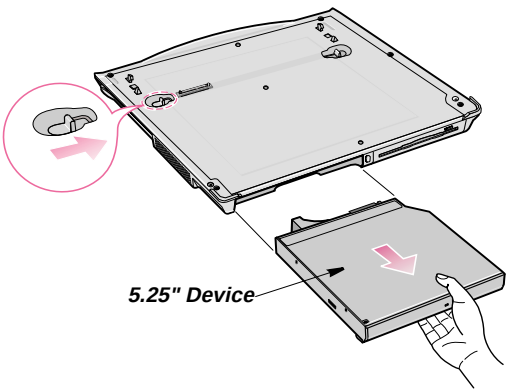


Figure 27. Changing 5.25" Device

1. Turn off the system.
2. Detach the system from the docking station.
3. Slide the 5.25” multi-bay latch toward the middle of the multi-bay.
4. The device will pop out approximately 2cm.

5. Remove the device.
6. Insert the new 5.25” device into the multi-bay until the multi-bay latch clicks.

Changing a 3.5” Device

The method of changing a 3.5” device is same as changing a 5.25” device except you have to use 3.5” multi-bay latch instead of 5.25”s (Figure 28).

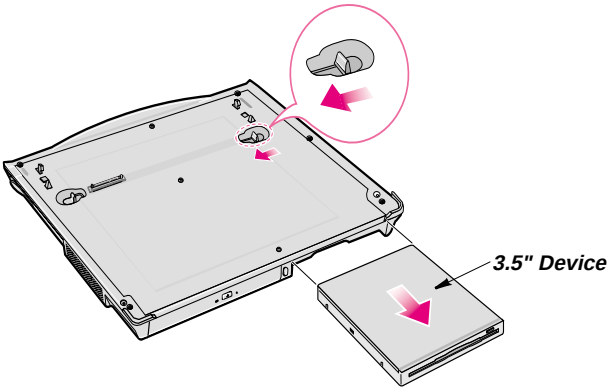


Figure 28. Changing 3.5" Device

Using the Disk Drives

Using the Floppy Disk Drive

Your computer comes with a 1.44 MB, 3.5-inch, floppy drive.

To use a floppy disk in your computer, insert it into the floppy drive (Figure 29).

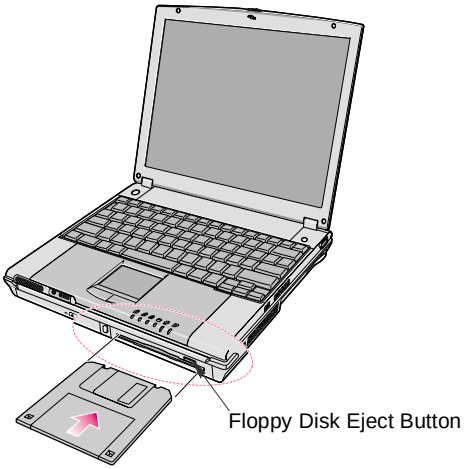


Figure 29. Inserting a Floppy Disk

To remove a floppy disk, press the floppy disk eject button on the front of the floppy drive.

To protect the data on your floppy disks, follow the manufacturers guidelines.

Using the CD/DVD-ROM Drive

Compact discs are designed so that you can easily insert one into the computer when you need it, and then remove it.

DVD Notes:

You may also purchase an optional CD/DVD device to view videos recorded on the CD/DVD medium. You will have to install the provided DVD software to view the DVD Title.

1. Press the button on the CD-ROM or DVD-ROM drive, and the tray slides out. (Do not lean on the tray; because it will not support much weight.)

CD/DVD drive precautions.
Do not place reflective objects in the disc slot because of possible hazardous laser emissions.
The laser beam used in this CD/DVD-ROM drive is harmful to the eyes. Do not attempt to disassemble the CD/DVD-ROM drive. Refer servicing to your authorized service center.
Do not touch the CD/DVD lens, doing so may damage the device.

CD/DVD tray fails to slide out
The tray may be stuck, in which case straighten out a paper clip, insert it into the Emergency Eject hole in the front of the CD/DVD-ROM and push it until the tray ejects.

CD/DVD LED On
A LED on the drive tray is on when the computer is reading from a CD. Do not remove a disc when this LED is on.

Proper CD/DVD Handling Techniques.
To clean a CD/DVD, wipe from the center outwards with clean and dry cloth. Remove the CD/DVD when the drive activity LED is off.

2. Insert a CD/DVD, label side up (or remove a disc, if you have finished using it).
3. Push the tray in gently to close the drive tray (Figure 30).

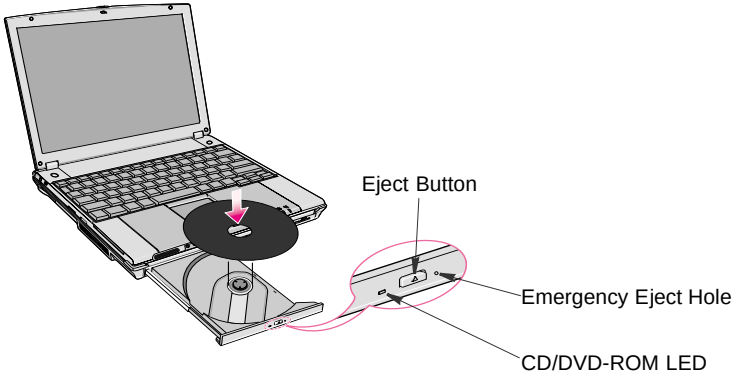


Figure 30. Using the CD/DVD-ROM Drive

Install and/or start a CD-based program as you would run a program on a floppy disk. See your operating system documentation for more information on running programs.

Working with PCMCIA (PC) Cards

By installing PC Cards, you can add functions to your notebook computer similar to those found on add-in boards for desktop computers. Available PC Cards include:

- Input/output, such as modem, network, video capture, and SCSI cards.
- Storage, such as hard drive and flash memory cards.

Your computer includes the following PC Card support:

- One PC-Card slot: You can install Type I or II cards in the slot.
- CardBus hardware and software: CardBus enables the computer to use 32-bit PCMCIA Cards. Windows Me supports 32-bit and 16-bit PC Cards.
- Zoomed video: Both PC Card slots and the video chip on your computer support zoomed video. When you install a zoom video PC Card slot, data can be transferred directly from the PC Card to video and audio systems without going through the microprocessor. Video conferencing and real-time multimedia devices, such as video cameras, are supported by zoomed video.

Maintaining PC Cards

To maintain your PC Cards, follow these guidelines:

- Keep cards away from excessive heat, direct sunlight, and liquids.
- Do not drop, bend, flex, or crush cards when handling.
- Keep dust, oil, water, magnets, and static electricity away from PC Cards.
- When a card is not in use, carry it in its protective carrying case.
- Some PC Cards include cables that extend from the back of the cards. Be careful not to bend or put excessive strain on these cables.

Using PC Cards

You can install PC Cards while the computer is on.

To insert a PC Card into a slot:

1. Push the slot door in with the PC Card.
2. Align the card with a slot and insert the card into the slot until it locks in place. See “Using PC Cards” on page 37.

The eject button for the card slot operates in two steps, therefore to remove a PC Card:

1. Push the eject button once to pop it outward.
2. Push the eject button again, then the card will be ejected.

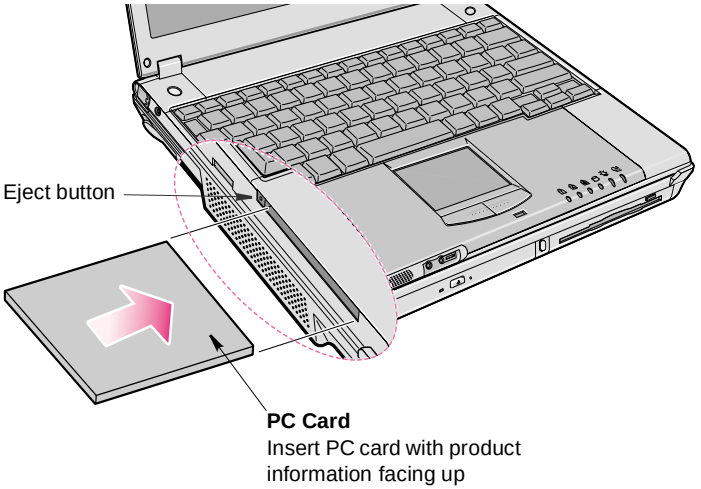


Figure 31. Inserting a PC Card

Windows Me

Windows Me automatically assigns computer resources (such as communication ports and memory addresses) to the PC Card installed in your computer.

To remove a PC Card from your computer if your operating system is Windows Me:

Use the following procedures to remove PC Cards, or you may lose data that is being stored to a card.

1. Click icon on the taskbar.
2. Select the name of the card you want to remove, and then click the Stop button.
3. Push the card eject button on the side of the PC Card slot when prompted to do so.
4. Pull the card out of the PC Card slot.

Multi Media Functions/Equipment

Media Player

You can play video and audio CD files with the Windows Media Player, as well as watching TV, video and listening to the radio through internet. The on-board audio hardware and software of your computer enable the computer to play audio/video compact discs. The instructions to play a video CD-ROM are the same as the instructions for the audio CD below. If you wish to do so, you can attach external speakers to the Headphone jack.

Playing a Audio/Multimedia CD-ROM

To play an Audio CD follow the instructions below:

1. Insert a compact disc into your CD-ROM drive.
2. Press the button on the CD-ROM drive to open the CD-ROM device.
3. Insert a CD, label side up.
4. Carefully push the tray in to close the drive tray. The Windows Media Player button appears on the taskbar if not already there, and the music begins to play. If the disk does not play click icon on the Windows task bar then navigate to the CD drive using the file open menu.

Figure 32. Windows Media Player

CD LED On

A LED on the drive tray is on when the computer is reading from a CD. Do not remove a disc when this LED is on.

Removing the Audio CD

To remove the CD follow the instructions below:

1. Click on the Windows taskbar to open the Windows Media Player window, if not already open.
2. Click **Stop** in the Windows Media Player window or simply close the Windows media player. See Figure 32.
3. Press the button on your CD-ROM drive. The drive tray opens and you can remove the CD from the CD-ROM drive.
4. For more information on playing compact discs, see the Help menu in the Windows Media Player window.

Movie Maker

You can edit audio and video data using this Movie Maker that is included with Windows Me. It is also possible to make a slide show with each frame or picture.

To start the program:

Click **Start** > **Programs** > **Accessories** > **Windows Movie Maker**.

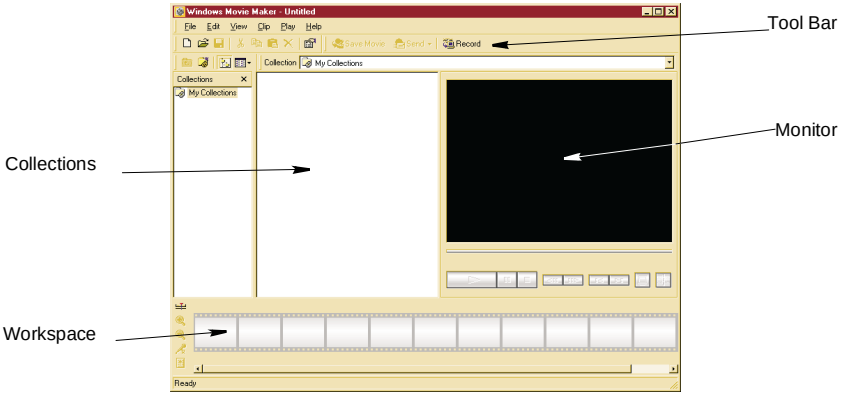


Figure 33. Windows Movie Maker

Please refer to the on-line help manual to operate the Windows Movie Maker.

Volume Control

Using the Keyboard

Changing the volume with your keyboard.

Use Fn + F7 to decrease the volume or Fn + F8 to increase the volume.

Using the Volume Control Icon

Double-Click icon in the active program tray. The **Volume Control** window pops up. Use this window to adjust the volume. You can pop up a simple volume slider by a single click icon.

MP3 Player

The flash memory size of the MP3 Player is 32 MB, but the memory size could be different from system to system.

Your system has a MP3 player integrated inside the computer chassis. You can download songs from internet and save them on your system. You can use the MP3 player to listen to music even though the system is powered off.

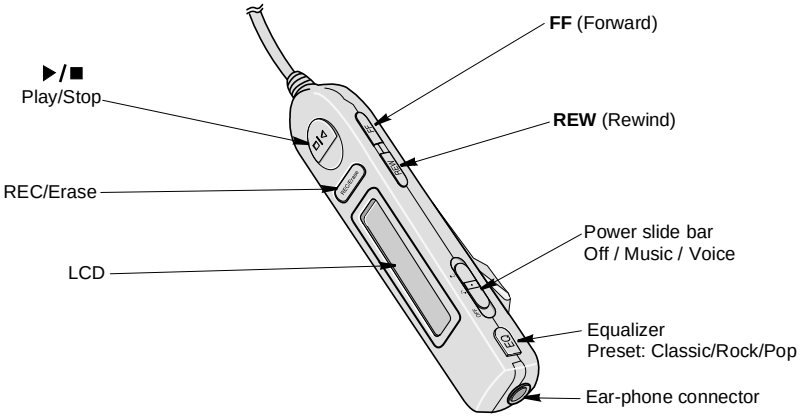


Figure 34. MP3 Controller Top/Right View

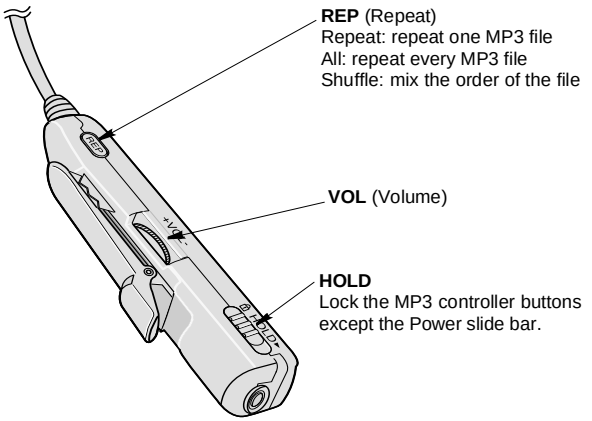

REP (Repeat)
Repeat: repeat one MP3 file
All: repeat every MP3 file
Shuffle: mix the order of the file
VOL (Volume)
HOLD
Lock the MP3 controller buttons
except the Power slide bar.

Figure 35. MP3 Controller Bottom/Left View

Listening to a MP3 file

To listen to your MP3 files simply follow the steps below:

1. Make a new folder on your system hard drive to store your MP3 files.
2. Connect MP3 controller to its jack on front of a system.

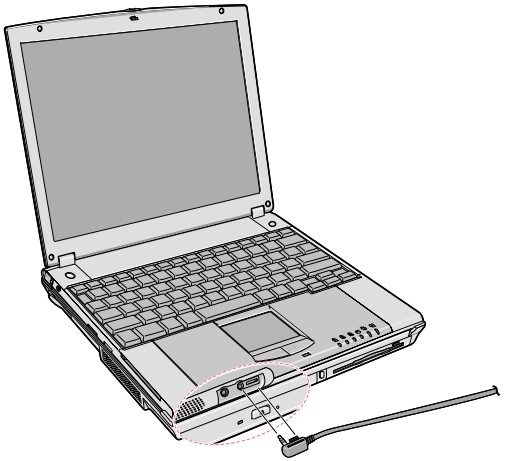


Figure 36. Connecting MP3 Controller

3. Connect ear-phone to the MP3 controller.

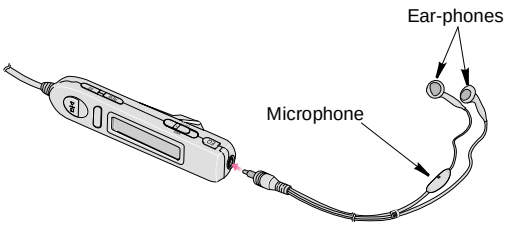


Figure 37. Headphone Hookup

4. Click **Start** > **MP3 Loader** > **MP3 Loader**.

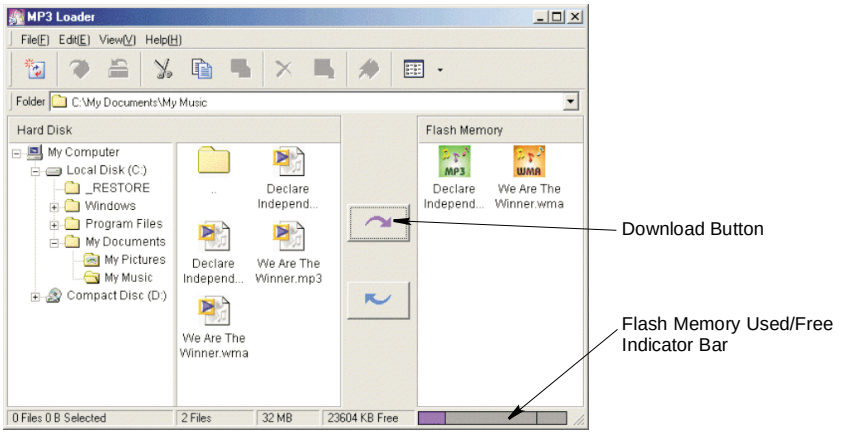


Figure 38. MP3 Loader

5. Open the folder you saved the MP3 files on the hard disk. The files will be shown in the middle part of the window in a similar manner to Windows Explorer.
6. Select files you want to save to the flash memory of MP3 Player.
7. Click .

   You may also use the standard windows drag and drop method to move your files. Repeat this step until you have downloaded all of your selections or you have run out of memory.
8. Close the MP3 loader.

The MP3 player will not operate with the MP3 loader open. "PC" will be displayed in the led window of the player.

9. Slide the Power Slide bar to Music mode. A musical note (♪) icon will appear on the LCD of MP3 controller.
10. Press **Play/Stop** button to play MP3 files. The MP3 file number and the playing time will be displayed on the LCD of the controller.

Refer to the on-line help of the program.

Voice Recorder

You can use the microphone attached to the ear-phone to record your voice or other sounds into the MP3 Player.

Recording

1. Slide the Power Slide bar to Voice mode. A microphone (🎤) icon will appear on the LCD of MP3 controller.
2. Press **REC/Erase** button to record your voice. The track number and recording time will be shown on the LCD of the MP3 controller.
3. Press **REC/Erase** button again to finish recording.
4. To listen to what you recorded, press **Play/Stop** button.

Delete Recording

1. Select a file (recorded file) from your MP3 controller that you wish to delete.
2. Press **REC/Erase** button for greater than 1 second. Next 'ERASE' message is displayed and blinks on the LCD, it means that the MP3 Player is ready to erase what you have chosen.
3. When 'ERASE' message is blinking, press **REC/Erase** button for greater than 1 second to erase the file.

If you are using MP3 Loader program, it is easier to erase the file by deleting a file from flash memory.

Using the Battery

Your computer uses a smart rechargeable Lithium-ion (Li-ion) battery pack for power when the AC adapter is not attached to an electrical outlet. The smart battery gives a accurate measurement of the current battery capacity which helps extend operating time by enabling effective power management in operating systems that take advantage of the accurate information supplied by the battery.

Charging the Battery

Your computer's battery starts charging automatically when you connect the power to the computer and to an electrical outlet. If the computer is off, the battery charges faster than if the computer's power is on.

Approximate charging times for the Li-Ion battery are:

- 1.5 hours with the computer off (Standard battery) and 3 hours (Long Life battery).
- 4 hours with the computer on (Standard battery) and 8 hours (Long Life battery).

While the battery is charging normally, the battery Status LED on the computer is amber (See "Reading the System Status LEDs" on page 26 for the location of the battery Status LED). When the battery is fully charged, the LED changes to green.

When you use a new battery pack for the first time or use a battery after a long period of storage, the initial battery life is shorter than normal. Normal battery life resumes after a few discharge-recharge cycles.

Follow these rules for charging your battery:

- A battery normally discharges power when not used for long periods of time. Be sure to recharge the battery every two months when it is not in use.
- Make it a practice to discharge your battery fully before recharging the battery. This can help extend the life of the battery.
- Do not attempt to charge the battery in temperatures of under 50^{o} F (10^{o} C) or over 90^{o} F (32^{o}C.)
- If you will not be using the computer for a long period of time (a month or more), you should completely charge the battery. After you have done so, remove the battery from the unit.

All batteries eventually wear out and lose the ability to hold a charge. You may need to replace your battery pack after a year of average usage.

All batteries lose their charge if they sit unused for an extended time period. When not used, battery can discharge fully in 2 to 3 months.

Increasing Battery Life

If you plan to use your notebook computer without the docking station, increase battery life using the following methods.

General Environment

Using the methods below you can increase battery life by as much as 1.5 times.

- Detach the docking station.
- Detach any unnecessary USB and PS/2 devices - (camera, mouse, keyboard etc.)
- Do not use any Multimedia programs - (Windows Media Player, audio/video CDs) unless absolutely necessary.

Adjust LCD Brightness

Reducing the LCD display brightness will reduce the power consumption of the battery. However, if you require the screen to be bright the computer will automatically reduce the brightness after 20 minutes of inactivity. The screen will be returned to original settings when you resume your activities.

To reduce the LCD display brightness use the + key combination.

Power Management

To change the time until your computer goes into reduced power modes, use the system power management function.

1. Click **Start** > **Settings** > **Control Panel**.
2. Double-Click **Power Options**.

The power options panel enables you to reduce the time until your computer goes into standby mode for example. See “Using Power Management Options” on page 57 for instructions on how to use this battery saving tool.

Battery Calibration

Calibrating your battery once a month is one of the recommended methods of increasing your computer's battery life. To calibrate the battery complete the following steps:

Calibration Notes:

You should start the battery calibration process with a fully charged battery, battery status LED is green. The power meter may not show 100%.

Before you commence the battery calibration process you should fully charge, then fully discharge and finally fully recharge the battery again.

1. Disconnect the AC power adapter after turning off the system.
2. Restart your computer and press

to enter BIOS setup.
3. Using the arrow keys, highlight **Battery Calibration** in the **Power** menu.
4. Press

to start calibration process. The calibration usually takes 2 to 3 hours depending on the current battery charge.
5. When the calibration process is complete, recharge the battery fully.

Safely Using the Battery

Follow these guidelines to safely use the battery:

- Turn off your computer and unplug it if you accidentally:
  - Expose the equipment to liquid.
  - Drop, jar, or damage the computer.
- Use only approved battery chargers.
- Do not disassemble the battery, heat it above 212° F (100° C), or burn it. The battery used in this computer may cause a fire or chemical burn if mistreated.
- Your computer's rechargeable battery may be considered hazardous waste.

If you replace your battery with a new one:

- Keep the old battery out of the reach of children.
- Dispose of the old battery promptly.
- Make sure that you follow all local requirements when you dispose of the old battery.

Removing the Battery

Your computer comes with the battery pack inserted in the computer. To remove the battery from the computer:

1. Turn the computer's power off and close the LCD display panel.
2. Undock the computer if docked. See "Docking/Undocking your Computer" on page 7.
3. Turn the computer over so that the bottom of the unit is facing up.
4. Slide the locking battery latch to the unlock position.

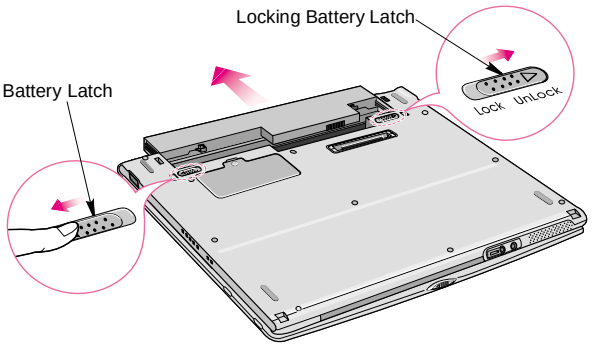


Figure 39. Removing the Battery Pack

5. Slide and hold the remaining battery latch outward and slide the battery out of the compartment.

Installing the Battery

To install the battery pack, follow the steps below:

Insert the battery into the battery compartment. Ensure the correct orientation so that the battery fits in its slot properly.

1. With the computer's power off, close the LCD panel and turn the computer over so the bottom of the unit faces up.
2. Slide the battery into the battery pack into the compartment (Figure 40). Ensure the battery is fully inserted into the compartment.

3. Slide the battery pack latches toward the center of the computer. Make sure the locking battery latch is in the lock position.

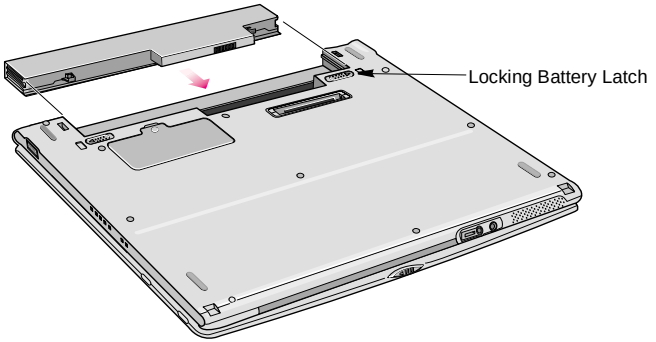


Figure 40. Installing the Battery

Monitoring the Battery Charge

Battery life is affected by factors such as the power-management settings in System Setup, the applications you use, and the brightness settings of the LCD. Under normal usage, the battery charge lasts approximately 3 hours for standard battery (undocked), 1 1/2 on standard battery (docked) and approximately 5 hours for the long life battery (undocked).

Battery life estimates are subject to variation. The actual life of your battery may be less than the estimates given in the manual.

Power Meter

The Power Meter displays the charge of the batteries and the current source of computer power, AC or batteries. You may monitor the battery charge or usage by using the “Power Meter”. To access the power meter click icon on the task bar or click **Start** > **Control Panel** > **Power Options** > **Power Meter** tab.

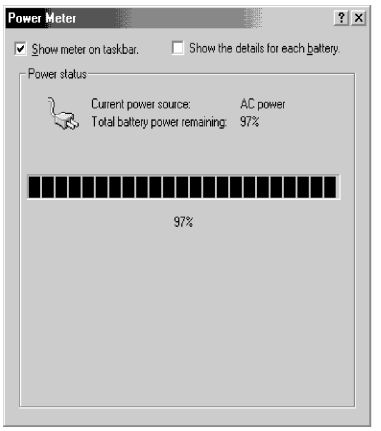


Figure 41. Power Meter

You may also check battery charge by moving the cursor to the icon, a small dialog box will display the % of charge.

Battery Warnings

If the battery charge is low (about 10%) you have approximately 5–10 minutes of battery life left. You should:

- Save your work and.
- Connect the power cord the computer or turn off the computer and install a fully charged battery.

You can adjust the battery alarm features by using the operating systems power management program (Control Panel > Power management in Windows Me).

If you cannot run your computer from the battery and the battery will not charge when you attach the power cord, the problem may be that:

- The battery temperature is below 50° F (10° C) or over 90° F (32° C). If you think the battery temperature is too hot or too cold, turn off the computer, remove the battery, and let the battery reach room temperature. Then try charging the battery again.
- The battery is defective. Replace the battery with a new battery.

Using System Setup

The System Setup program enables you to configure your computer hardware and set security and power-savings options. The settings you choose are stored in battery-maintained CMOS memory that saves the information even when the computer's power is turned off. When your computer is turned back on, it is configured with the values found in this memory.

Run System Setup if you get a message prompting you to run the program. You may also want to run System Setup, particularly the first time you use your computer, to set the time and date, use security or power-management features, or alter the settings of other features.

Your computer's version of System Setup may not include all the fields listed here or may include additional fields. Field names and order of appearance can vary according to the version of the BIOS (basic input/output system) on your computer.

Starting System Setup

To start System Setup, turn on your computer and then press

and hold until the System Setup screen appears.

The top of the System Setup screen has a menu bar with the selections listed in Table 5.

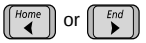
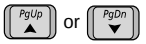
Table 5. System Setup Menus

Menu	Function
Main	Changes the basic system configuration.
Advanced	Configures advanced features on your computer.
Security	Enables security features, including passwords and backup and virus-check reminders.
Power	Configures power-management features.
Boot	Specifies the order of boot devices and configures boot features.
Exit	Specifies how to exit System Setup.

To open the menu you need to use, use the left or right arrow keys to select the menu name.

Table 6 lists the keys you can use to navigate through System Setup.

Table 6. System Setup Navigation Keys

Navigation Key	Function
	Displays the General Help window.
	Exits the current menu.
	Selects different menus. Pressing the **ESC** key at the Main menu brings you to the Exit menu.
	Moves the cursor up and down between fields.
	Moves the cursor forward through the cells for a highlighted field. If the field has only one cell, the **Tab** key moves the cursor down to the next field.
	Scrolls backwards through the options for the highlighted field.
	Scrolls forward through the options for the highlighted field.
	Sets the parameters for the current menu to their default values.
	Sets the parameters for the current menu to their previous values.
	Executes commands or opens a submenu.

Changing Booting Priority

The Boot menu in System Setup enables you to select the booting device and to set booting options.

Boot Device Priority field enables:
You to select the order in which the computer attempts to boot from different devices. The field has four options: **Diskette Drive**, **Removable Devices**, **Hard Drive**, and **ATAPI CD/DVD-ROM Drive**.

To change the booting device priority, choose the device positions by completing the following:

1. At startup, press F2 Sys Rq to open **System Setup**.
2. Use End to select the **Boot** menu.
3. Press Enter in the **Boot Device Priority** field.
4. Highlight the option with PgUp or PgDn keys.
5. Use + = or - _ keys until the option moves up or down in the list of options and the number *1*, *2*, 3, or *4* appears beside the option.
6. Press Esc to return to the Boot menu.

The default setting is *1. Diskette Drive, 2. Removable Devices, 3. Hard Drive, 4. ATAPI CD/DVD-ROM Drive*.

7. Press End to go to the exit menu.
8. Select Exit Save Changes, press Enter.
9. Press Enter again to restart the computer.

If you want to start the system using a bootable CD, change the ATAPI CD-ROM Drive to be the first priority and make sure that Auto is set in the Type field of the Secondary Master Submenu at Main page.

Using System Security

This section describes the security options provided with your computer.

System Passwords

The computer provides two levels of password security: administrative-level (supervisor) and user-level (user). Either password prevents unauthorized access to the computer. The supervisor password enables full access to all System Setup fields. The user password enables full access to only the **Set User Password** and **Password on boot** security fields and read access to all other System Setup fields.

If multiple users have access to the computer (such as in a network environment), a supervisor password can prevent unauthorized access to certain security options.

Choose the type of password security that is appropriate for your work. If you want to set a user password, you must set a supervisor password first.

If You Forget Your Password

It is very important that you do not forget your password. If you do, you cannot access your system. Write your password down and keep it in a safe place. If you do forget and cannot find the written note, you will have to contact the reseller of your computer and possibly take or send it in to them so that you can access the computer again.

Creating a Password

To create a password follow the instructions below:

1. At startup, press F2 Sys Rq to open **System Setup**.
2. Use End to select the **Security** menu.
3. Use PgDn to select **Set Supervisor Password** or **Set User Password**.
4. Press Enter. The **Set Password** dialog box appears.
5. Type a password of up to seven characters.

Precautions for Password Entry:

You can enter letters or numbers, but you cannot use the function keys, such as the Shift key. Your computer does not distinguish between capitalized and lowercase letters in your password. As you type the password, the cursor moves but your password does not appear on the screen.

6. Press Enter after you have typed your password. The computer prompts you to reenter your password for verification.
7. Type your password again and press Enter. A message appears telling you that the changes have been saved.
8. Press Enter again to return to the **Security** menu.
9. Press Esc to go to the Exit menu.
10. Select **Exit Saving Changes**, press Enter.
11. Press Enter again to restart the computer.

Deleting a Password

To delete the password follow the steps below:

1. At startup, press F2 Sys Rq to open **System Setup**.
2. Type your **password** when prompted and press Enter.
3. Use End to select the **Security menu**.
4. Use PgDn to select **Set Supervisor Password** or **Set User Password**.
5. Press Enter. The computer prompts you to enter the current password.
6. Press Enter. The computer prompts you to enter a password. *Do not type anything*.
7. Press Enter. The computer prompts you to re-enter the password. *Do not type anything*.
8. Press Enter. A message appears telling you that the changes have been saved.
9. Press Enter again to return to the Security menu.
10. Press Esc to go to the Exit menu.
11. Select **Exit Saving Changes**, press Enter.
12. Press Enter again to restart the computer.

To enable the prompt, select the option *Enabled* in the *Password on boot* field in System Setup.

Using Power Management Options

Your computer includes **Power Management** options that can help the battery charge last longer and extend the life of the battery. Power-management options will slow down or shut off system components when the components are not being used.

Power management may slow down system performance. Your computer runs fastest with the power cord attached, when power management is disabled.

In the next sections, basic and advanced methods of power management will be discussed.

Intel SpeedStep™

There are two methods to change the Intel SpeedStep™ setting, they are explained below.

BIOS Interface

Intel SpeedStep™ will control the CPU speed on your system according to the kind of power supply as part of power saving management.

To use this function, your system must meet the conditions below:

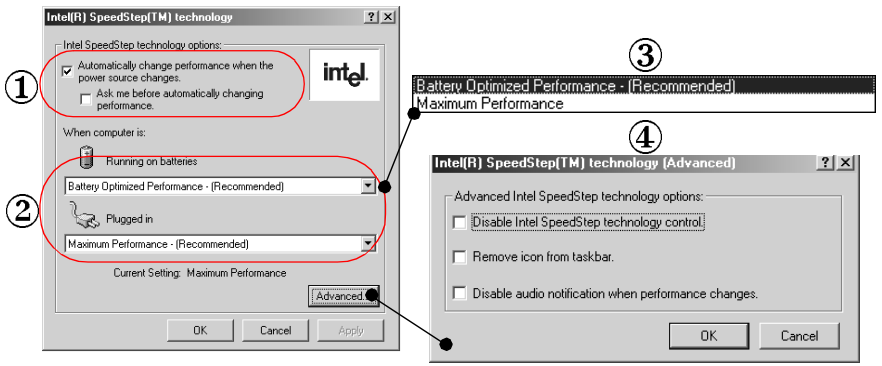
- Intel SpeedStep™ supporting CPU
- Application for SpeedStep™ function
- BIOS Support

To start or verify Intel SpeedStep™ is operational complete the following:

1. Start your computer and press F2 Sys Rq to enter BIOS setup.
2. Go to System Power menu
3. Select the Intel(R) SpeedStep™ field and select one of the following options:
   - **Performance:** The CPU runs at high speed regardless of the type of power supply. Battery life is the shortest.
   - **Battery:** The CPU runs at low speed regardless of the type of power supply. Battery life is the longest.
   - **Automatic:** The CPU speed is changed according to the type of power supply. (It is recommended you select this option)
   - **Disabled:** Disables this function
4. Press F10 to save and exit system setup

Task Bar Interface

You may change the Intel SpeedStep™ setting by double clicking on the icon on the task bar. This will open the **Intel(R) SpeedStep™ technology** popup window.



The following will explain each of the above numbered items.

1. This option will allow automatic or “Ask me before automatically changing” CPU speed changes based on the power supply source.
2. Each power supply option has a drop down window and when you click on the arrow the drop down selector appears, displayed in number ③ above. These options allow the user to set operation of the CPU based on the power supply source.
3. These are the available options for each type of supplied power.
4. The **Intel(R) SpeedStep™ technology [Advanced]** popup window has 3 options that are self explanatory.

Basic Power Management Schemes

This section discusses the basic schemes of power management when the computer is operating on battery power or using AC power.

Standby vs. Hibernation

Standby unlike hibernation mode does not store unsaved information on your hard disk; it's stored only in the computer memory. If there is an interruption in power, the information is lost. So before putting your computer on standby, you should save your files.

Changing Devices:

Do not change devices while in standby or hibernate modes.

To enter the power management window complete the following:

1. Click **Start** > **Settings** > **Control Panel**.
2. Double-Click icon to display the **Power Options Properties** window.
3. Click the **Power Schemes** tab to display the basic power management options.
4. Select the time that you wish each of the following actions to occur in **Battery** and **AC power** mode.
   - Turn off the monitor.
   - Turn off the all hard disks.
   - System standby mode.
   - System hibernation mode.

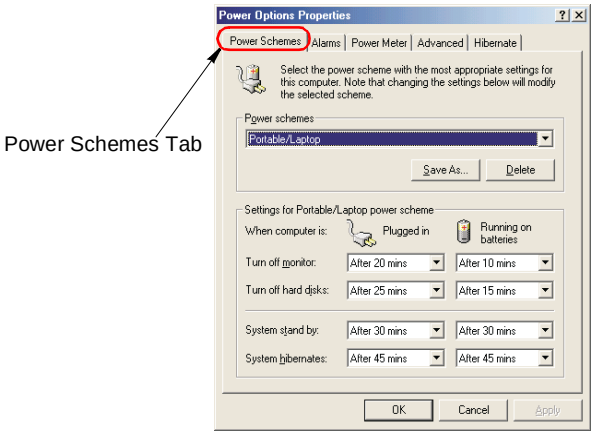


Figure 42. Power Options Properties - Power Schemes

Turning off the monitor and HDDs will save a substantial battery power, therefore when in battery only mode select the shortest time practical.

❁ **Hibernate Mode (***Power Management or Manual Method***)**

When hibernation is used, your computer turns off and when you power up again, everything is restored exactly as you left it—including programs and documents you may not have saved or closed. Everything in memory gets saved to the HDD, and the monitor and hard disk get turned off.

Frequent Interruptions:
If you experience frequent interruptions, you might also consider putting your computer into automatic hibernation after a specified number of minutes using the power management options.

❁ **Standby Mode (***Power Management or Manual Method***)**

Standby is used mainly for conserving battery power in your notebook computer. It also gives you the benefit of getting right back to your work without waiting for the computer to restart. Standby turns off your monitor and hard disks, placing your entire system in a low-power state. When you return to your computer, restores your desktop exactly as you left it. It is recommended that you do not enter standby mode with less than 20% battery power.

5. Click **OK** to set your power management options and close the window.

The manual <Fn + F9> key combination will not work to go into Standby or Hibernate modes while you are playing a multimedia program or using the USB camera

Advanced Power Management Schemes

This section discusses the advanced power management schemes. There are two buttons that you can use to manually conserve power.

To enter the power management window complete the following:

1. Click **Start** > **Settings** > **Control Panel**.
2. Double-Click icon to display the **Power Options Properties** window
3. Click the **Advanced** tab to display the advanced power management options.

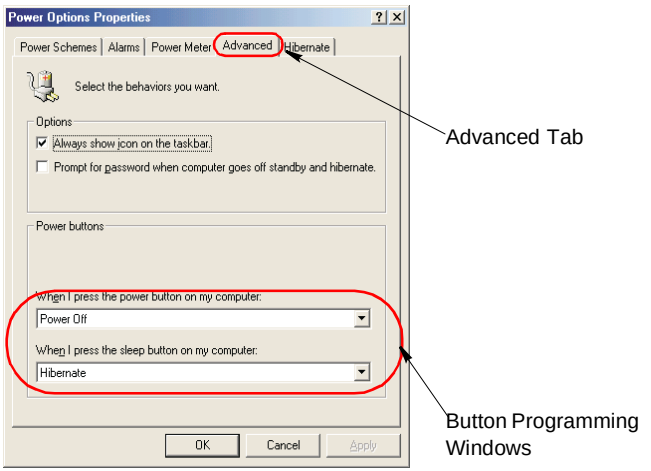


Figure 43. Power Options Properties - Advanced

4. Select the mode (**Standby/Hibernate/Power Off**) that you wish to assign to the Power button and/or Sleep F9 Rest key.

The "Sleep" key is assigned to the Fn + F9 Rest key combination.

See "Basic Power Management Schemes" on page 59 for meaning of Standby and Hibernate modes.

5. Click **OK** to set your power management options and close the window.

   You can return to normal operation after you have used one of the "Power Management" buttons by quickly pushing and releasing the **Power** button.

Installing a New HDD

This section discusses installing a new HDD and other basic HDD operations.

Installing/Reinstalling a HDD

To install a new HDD you must contact your local service representative. He will do the physical change of the drive. You should complete the instructions below before you go to the service center.

See the information below before you install your HDD:

- Back up data files of your old hard drive.
- For system boot with CD-ROM, under the Boot menu in System setup, set Bootable CD Check to Enabled and set Boot Device Priority is ordered starting from the [DVD/CD-ROM].

When you are ready to install the new HDD use the Recovery CD-ROM to install the device driver.

Using FDISK Utility

To use the FDISK utility:

1. Set the system boot with CD-ROM, press

to boot with "Safe mode command prompt only".
2. Operate Fdisk.exe, type **A:\>fdisk**.
3. Press **Enter**.
4. When **Do you wish to enable large disk support (Y/N)...?** shows.
5. Select **Y** and press **Enter**.
6. Select **1. Create DOS partition or Logical DOS Drive** field in [FDISK Options].
7. Select **Create Primary DOS Partition** field in [Create DOS Partition or Logical DOS Drive].
8. Press Enter to start creating **Primary DOS Partition**.
9. Finish the Fdisk by pressing

.

10. Display the HDD information using #4 in the FDISK menu. verify the size of the HDD partition.

11. Press the power button to reboot the system.

Formatting the HDD

To format the HDD complete the following:

1. Boot system by CD-ROM.
2. Operate Format.exe, type '**A:/format c: /s**' and press **Enter**.
3. Warning message saying all the data will be removed shows, type**Y** for **Proceed with Format (Y/N)?** and press **Enter**.
4. Type the drive label (if one is desired) and press **Enter**.

(Re)Installing Windows and Device Drivers

Use **System Recovery CD** to (re)install **OS** and **System Software CD** to (re)install device' drivers.

The System Recovery CD is used to (re)install the OS and *System Software to a new HDD* or recover from a system crash.

Video Features and Configuration

Your computer includes a TFT LCD or active-matrix display. The capabilities of the screen plus the video drivers installed on the computer determine the quality of the image your LCD can display.

The following sections describe the display capabilities of your computer.

Adjusting the LCD Display

You may wish to adjust the LCD (Liquid-Crystal Display) when you begin using your computer. A TFT (Thin-Film Transistor) LCD does not require adjustment for contrast because the contrast is set to remain at maximum.

To adjust the LCD:

- Press + to decrease the display brightness.
- Press + to increase the display brightness.

Resolution and Color Depth

- ● - Display supported
- ▲ - Display Supported except for DVD
- **X** - Display not supported

Use either LCD or CRT when using the DVD player but not both.

LCD Only

CRT / Refresh Rate / Color	640 X 480		800 X 600		1024 X 768	
	Optimal	Default	Optimal	Default	Optimal	Default
256 Color	●	●	●	●	●	●
16 bit	●	●	●	●	●	●
32 bit	●	●	●	●	●	●

CRT Only

CRT / Refresh Rate / Color	640 X 480		800 X 600		1024 X 768		1280 X 1064		1400 X 1050		1600 X 1200	
	Optimal	Default	Optimal	Default	Optimal	Default	Optimal	Default	Optimal	Default	Optimal	Default
256 Color	●	●	●	●	●	●	●	●	●	●	●	●
16 bit	●	●	●	●	●	●	●	●	●	●	●	●
32 bit	●	●	●	●	●	●	▲	▲	x	x	x	x

Dual Monitor (LCD & CRT)

CRT / Refresh Rate / Color	640 X 480		800 X 600		1024 X 768	
	Optimal	Default	Optimal	Default	Optimal	Default
256 Color	●	●	●	●	●	●
16 bit	●	●	●	●	▲	●
32 bit	●	●	▲	●	▲	●

Dual View (Using the LCD and CRT as 1 Display)

256 Color

CRT / Refresh Rate / LCD	640 X 480		800 X 600		1024 X 768		1280 X 1064		1400 X 1050	
	Optimal	Default	Optimal	Default	Optimal	Default	Optimal	Default	Optimal	Default
640 X 480	●	●	●	●	●	●	●	●	x	x
800 X 600	●	●	●	●	●	●	●	●	x	x
1024 X 768	●	●	●	●	●	●	●	●	x	x

16 bit Color

CRT / Refresh Rate / LCD	640 X 480		800 X 600		1024 X 768		1280 X 1064		1400 X 1050	
	Optimal	Default	Optimal	Default	Optimal	Default	Optimal	Default	Optimal	Default
640 X 480	●	●	●	●	●	●	●	●	x	x
800 X 600	●	●	●	●	●	●	●	●	x	x
1024 X 768	●	●	●	●	●	●	●	●	x	x

32 bit Color

CRT / Refresh Rate / LCD	640 X 480		800 X 600		1024 X 768		1280 X 1064		1400 X 1050	
	Optimal	Default	Optimal	Default	Optimal	Default	Optimal	Default	Optimal	Default
640 X 480	●	●	●	●	▲	●	x	x	x	x
800 X 600	●	●	●	●	▲	●	x	x	x	x
1024 X 768	▲	▲	▲	▲	▲	▲	x	x	x	x

Configuring Display Features

The following sections describe how to configure the display settings on your computer.

Selecting a Monitor Type

When you attach an external monitor to your computer, Windows Me automatically selects display settings for it. If you wish, you can adjust the display settings by selecting a monitor type:

1. Click **Start** > **Settings** > **Control Panel**.
2. Double-Click icon. The Display Properties window appears.
3. Click the **Settings** tab. The Settings screen appears.
4. Click the **Advanced** button. The Advanced Properties screen appears.
5. Click the **Monitor** tab.

6. Click **Change**. The **Update Device Driver Wizard** screen appears.
7. Click **Next**.
8. Select **Display a list of all the drivers in a specific location, so you can select the driver you want** radio button.
9. Click **Next**.
10. Select **Show all hardware** radio button.
11. Select the manufacturer and model setting that matches your external monitor.

Your computer has an intelligent video chip set that automatically matches your LCD panel resolution and frequency when an external monitor is not present.

12. Click **Next**.
13. The **Update Device Driver Wizard** screen appears showing the driver location of the device you have selected.
14. Click **Next**.
15. Follow any prompts that appear on the screen.

Changing Color Depth and Resolution

To change the colour depth and resolution of your LCD or external monitor:

1. Click ***Start*** > **Settings** > **Control Panel**.
2. Double-Click icon. The Display Properties window appears.

3. Click the **Settings** tab. The Settings screen appears.

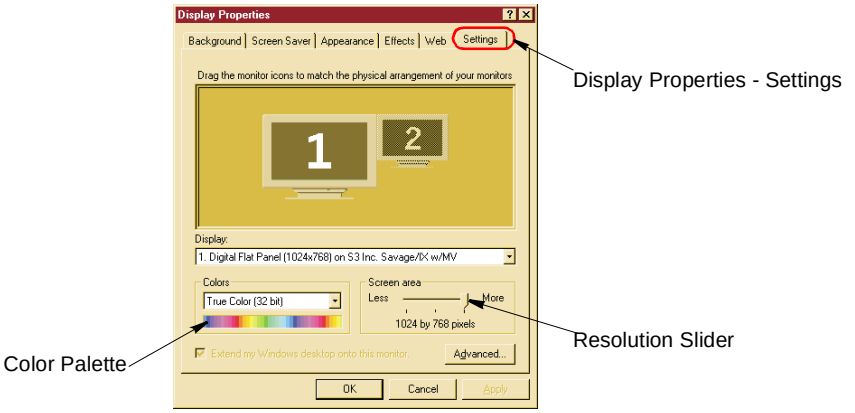
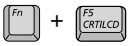


Figure 44. Display Properties Window

4. To change the colour depth, click the arrow next to **Color palette** and select the colour depth you want.
5. To change the resolution, click and drag the slider under the **Screen area** until you select the resolution you want.
6. Click **OK**.
7. Follow the prompts that appear on the screen.

Using the TV-Out Port

This feature is only available with Windows Me. Using the TV-out port, a compatible TV or other compatible display device can be connected and an image displayed. No Audio is transmitted through the TV-Out port. To check if and how your TV displays the TV-out signal, see the documentation included with your TV.

Concurrent enabling of the LCD and TV is not supported. Therefore it is recommended either the TV or LCD is used. While TV is ON, pressing 

disables *TV-Out.*

To enable TV-out:

1. Connect the TV to the TV-Out port using an appropriate cable.
2. Enter System Setup and under the Advanced menu, set *TV Out Mode* to the appropriate standard for your TV. (Default is NTSC, if you need to change go to BIOS setup).
3. Reboot your computer.
4. Click the **Start** > **Settings** > **Control Panel**.
5. Double-Click icon. The Display Properties window appears.
6. Click the **Settings** tab. The Settings screen appears.
7. Click the **Advanced Properties** button. The Advanced Properties screen appears.
8. Click the **S3DuoVue** tab. The system will now try to detect a TV connected to the TV-out port.
9. Put a tick in the box under the TV symbol if it is detected.

If the TV symbol is greyed out then the system has not detected a TV, check that the TV standard in the System Setup is set correctly and that the TV is turned on and connected properly. And you can not use TV-out port in DOS mode.

10. Click **OK.**
11. Follow the prompts that appear on the screen.

Using Duo View Mode

Single View mode is used to be the basic display method until now which displays same view on all the display devices connected to a system. While *Duo View mode* is the "Extended screen mode" supported in Windows Me, which displays separate views on each display devices connected to a system.

The default setting on your system is Single View mode.

Setting Duo View Mode

To set Duo View mode on your system:

1. Connect peripheral display device such as monitor or TV to your system and start the system.
2. Select **Start** > **Settings** > **Control panel**.
3. Double-Click icon. The Display Properties window appears.
4. Click the **Settings** tab. The Settings screen appears.
5. Click the second monitor among two monitor pictures.
6. When **~ Do you want to enable this monitor?** message appears, then select **Yes**.
7. Click **OK**.

To confirm whether the system is set properly with Duo View mode:

1. Open **Display properties** and click **Settings** tab.
2. Place the cursor on the first monitor picture and click and hold over a second, a number **1** will be shown on the first actual monitor screen. And place the cursor on the second monitor picture and click and hold over a second, then digit number **2** will be shown on the second actual monitor screen.
3. The monitor displays digit number 1 is the primary monitor and number 2 is the secondary monitor.
   In **Windows explorer**, the program is displayed on the primary monitor, if you can drag it to the secondary monitor, then Duo View mode is now working properly.

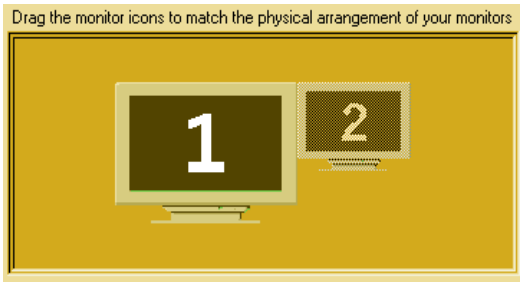


Figure 45. Dual View - Display Menu

The secondary monitor has a display of 256 colors (color depth) and 640x480 pixels (resolution) at first. The color depth and resolution of primary/secondary monitors are separately changeable.

To reset the system to Single View mode:

1. Start **Display properties**.
2. Click **Settings** tab.
3. Click the second monitor among two monitor pictures.
4. Uncheck **Extend my Windows desktop onto this monitor**.
5. Click **OK**.

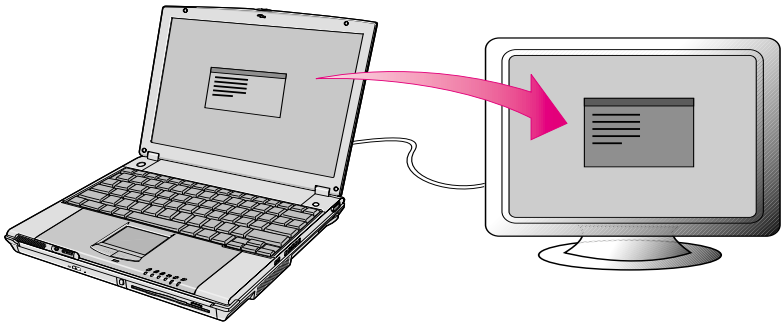


Figure 46. Computer in Duo View Mode

Using Options

You can order the following options for your Notebook computer from your authorized reseller:

- An extra AC adapter.
- A battery pack. [Standard or Long Life size]
- An upgraded hard drive. Optional hard drives are available to fit in the hard drive compartment or the 3.5" multi-bay of the docking station.
- 64,128 and 256 MB SDRAM memory modules that enable you to upgrade your computer's memory to a maximum of 320MB.
- A CD-ROM drive module. [5.25" Multi-bay]
- A DVD-ROM drive module. [5.25" Multi-bay]
- A CD-RW drive module. [5.25" Multi-bay]
- A Zip 250 Mb drive. [3.5" Multi-bay]

The options that are available may change periodically. Contact your reseller for updated information on current and new options.

Memory Module

You can increase system memory by installing an optional 64,128 or 256 MB memory module.

Before You Install Memory

To prevent personal injury and damage to the equipment, follow the precautions listed here before installing a memory module.

Take the following precautions when installing a memory module:

- Before you remove the memory module compartment door, turn off the computer, unplug the power cord, and remove the battery. Also, disconnect any peripheral devices.
- Before handling a memory module, discharge any static electricity by touching a grounded surface or using a grounding wrist strap.

- Do not insert objects with conductive material, such as metal screwdrivers or graphite pencils, into the memory-module compartment.
- Be careful in handling the metal plate of the memory door.

To avoid possible system problems, use only an approved memory module in your computer.

Installing a Memory Module

Handle a memory module carefully. Hold them only by the edges.

To install a memory module:

1. Turn the computer over so that the bottom faces up.
2. Using a screwdriver, remove the screw that holds the memory-module compartment door in place. (Figure 47).

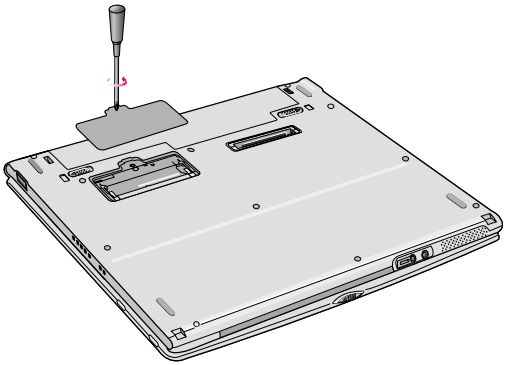


Figure 47. Removing the Memory Module Compartment Door

3. Grasp the edge of the door and pull the door off the chassis.

Memory Module Precautions:

When removing the module, pull on the plastic portion of the connector slots tabs only. Do not pull on the metal part of the tabs, this may damage the tabs.

4. Remove the installed module if necessary.

   a. Pull the tabs on the connector slot outward slightly, until the edge of the memory module pops up.

   b. Hold the memory module by the edges and pull it forward out of the compartment.

5. Align the connector on the memory module with the connector of the slot.

6. Push the memory module into the slot at a slight angle until the connectors are fully engaged (Figure 48).

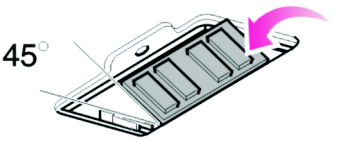


Figure 48. Installing a Memory Module

7. Push down on the edge of the memory module until the module snaps into place.

8. Align the memory module compartment door with the compartment and push the door down until it snaps into place.

9. Reinstall the screw you removed in step 2.

10. Turn on the computer and perform a complete POST to check the memory integrity.

Troubleshooting

If you ever have difficulty running your computer, follow these steps:

1. Consult the following sections for advice on how to handle system problems.
2. If steps 1 do not help you to resolve the problem, contact your reseller.
3. Refer to warnings, cautions and notes within applicable portion of this manual.
4. Refer to “Windows” and other “Program” manuals as applicable.

Operating Problems

This section tells you what to do if you have problems running your computer. If any problem persists after you take corrective action, contact your reseller for assistance.

The computer does nothing when you turn it on.

Has the battery run down? Connect the power cord to get power and recharge the battery. Try turning on the computer again.

Some of the letter keys type numbers instead of the indicated letters.

Is the Num Lock LED on? If so, the numeric keypad on the keyboard is active. To return the keypad keys to typing letters, press

.

Battery power seems to run out faster than expected.

If you are running the computer from the battery rather than the power cord, make sure that you set the **Idle Mode** field in System Setup to **On**. This setting enables the microprocessor and the hard drive to slow down when the computer is not busy.

Certain software programs “hang” during operations when there is no interaction with the keyboard or peripheral devices.

Your computer may be in Suspend or Rest mode. Tap the touchpad to resume from Suspend or press the power button to resume from rest.

A PC Card does not work correctly.

Make sure that the PC Card is inserted left side up in the PC Card slot. Check that the card is inserted fully into the slot. If you are using a PC Card modem, check the modem cable connections.

The System Setup settings are not retained when you turn off the computer.

The CMOS battery inside the computer may need to be replaced. The CMOS battery provides power to save the system BIOS information when the computer is turned off. Normally, the CMOS battery lasts for several years. Do not attempt to open the chassis and replace this battery yourself or your warranty is void. Have an authorized the manufacturer's service center replace the CMOS battery.

No sound.

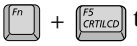
Verify if the mute check box is checked or the volume is not turned down in the pop up menu by clicking the speaker icon of the task bar.

Can not use the ZV card.

Check if the driver for the ZV card is VPE type. Contact the ZV card manufacturer for detailed information.

Video Problems

Nothing appears on the LCD panel when you turn on the computer.

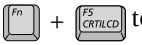
Adjust the brightness on a TFT LCD. Are you using an external monitor? If so, press 

to return to the LCD panel.

Error Message when entering Power Management while in Duo View mode.

If the secondary monitor is set to 256 colors, this error message could appear. Change the color of the secondary monitor to 'high color (16bit)'.

Nothing appears on the external monitor when you switch the display to it.

Is the monitor properly connected to the computer? Is the monitor's power cord connected to an AC wall outlet? Check the brightness and contrast controls on the monitor. Does the program appear on the LCD panel instead of the external monitor? If so, press 

to switch to the monitor. Try turning the monitor off and on again.

Only the LCD Display works when system returns from Power management mode while in Duo View mode.

The system resets to the original BIOS setup when the system returns from the power management mode. If the Display mode, in the Advanced menu of BIOS setup is set to LCD, then only the LCD will be turned on when the system wakes up. Set the Display mode in the BIOS to Both to turn on the LCD & CRT on wakeup.

The external monitor displays flashes or waves.

Check the cables between the monitor and the computer. Are they properly installed?

Cannot toggle between CRT and LCD while playing the 3D game.

If you are using the Duo View mode, you can not use the <Fn> + < F5/CRT/LCD> key combination and also you cannot use this function in 3D games using Direct-X.

There is LCD or CRT has noise while playing a MPEG file with the Media player/ DVD software or using the USB camera.

Adjust the resolution and the color to 1024 x 768 and 16 bit to display clearly, or avoid playing two programs at the same time.

A desk, cpl error occurs and the Duo View icon disappears while changing the resolution and color Display properties settings.

The resolution and the color you chose in the Display properties is not supported by the video chip. Change the resolution and the color to 1024 x 768 and 16 bit.

If the connected CRT monitor display is not steady.

If the refresh rate is not optimal to the connected CRT, then this problem may occur.

To correct this problem do the following:

1. Click **Start** > **Settings** > **Control Panel.**
2. Double Click the **Display** icon to open the **Display properties**.
3. Select **Settings**
4. Click the **Advanced** button.
5. Click the Adapter tab
6. Adjust the Refresh rate to optimal or other selections until you see the CRT clearly.

Modem Problems

My modem doesn't connect to services or disconnects during communication

If your modem has difficulty in connecting to on-line services and sustaining communications, firstly check the quality of the phone line. Interference from certain devices or poor line power conditions may degrade the quality of your connection. Under these conditions gradually reduce the communication speed of your modem until a reliable connection is achieved.

Check your on-line service provider. Service line or service may be halted.

When using a PBX phone system I can't dial on my modem.

If you use a PBX phone system you may need to press a number i.e. '9' to connect to an external line, you should enter the following command before trying the connection and check modem initialization.

ATX3&W

And add “9,” as the external line prefix (in our example) of the phone number when using the dial command “ATDT9, 123-4567”.

Screen displays random or garbage characters during communications.

After your modem has connected to the on-line service, your screen may display garbage characters or after-images in screen transitions. This problem is caused by a mismatch of the terminal modes between communications service and communications programs. You need to match the terminal modes to each other.

Refer the user's guide of the communications program you're using.

Reports error message that insufficient Hard Disk space is available.

Delete the unnecessary messages or data you received by Modem or Fax every one to three months as required.

If you're using WWW of the internet, many picture and data files can get downloaded to your HARD DISK every time you visit a home page, which will consume a lot of your HARD DISK space. Delete the unnecessary messages or data you received by Modem or Fax every one to three months as required. For more detailed information about the method of deleting, refer to the help of the Web browser you've been using or your user's guide.

Depending on telephone line status, or types of Fax machines/programs that send/receive the Fax, Fax transmission/reception may not work correctly. In that case, please try other Fax programs. (e.g. Microsoft Fax)

Driver Problems / Driver (Re)Installation

This section will discuss driver problems due to system crashes, accidental file deletion, etc. Generally you will simply reinstall the driver. More detail is provided in the sections below.

Windows Me Modem Driver (Re)Installation

Modem Driver (Re)Installation

Before you (re)install the modem drivers, check if the *PCI Serial Controller* under *Other devices of Device Manager tab* of Control Panel on Windows exists. If it exists, remove it first.

After that, (re)install the modem driver according to the instruction below.

You can also install the modem driver by specifying the directory location of the modem driver file. When windows 98 *automatically* detects the modem and starts the *Add New Hardware Wizard dialog* box you may follow the instructions in the wizard or click on the cancel button. (However, It is easier to not use the wizard)

1. Insert the CD or floppy diskette that contains the modem driver.
2. Click **Start**.
3. Click **Run**. Locate the directory that contain the modem driver.
4. Run **setup.exe** (ex D:\Driver\Combodrv\Modemdrv\WinMe\Setup.exe).
5. Click the **OK** button in the confirmation dialog box.
6. The setup program will copy the driver files into the correct system locations.
7. Restart the system by clicking **OK**.

Selecting a Country

You have to check if the country is selected correctly before you use the modem.

Incorrect Country Selection:

If the country is not selected correctly, the modem may not work properly. Therefore, you must check if the country you're calling from is selected appropriately and then use the modem. If your modem only supports “Domestic", you must select the country where you bought your notebook computer. If you use the modem in other countries, your modem may not work properly. If your modem supports "Worldwide", please check with your local distributor which countries are supported by the SENS modem.

1. Click **Start** > **Settings** >**Control Panel**.
2. Double-Click the **Telephony** icon.
3. Go to the **My Locations tab** of **Dialing Properties** dialog. Select the country at the **I am in this country/region** list box.

Confirming (Re)Installation of the Modem Driver

After the modem driver is (re)installed, check if the modem driver is (re)installed properly.

1. Click **Start** > **Settings** >**Control Panel**.
2. Double-Click icon.
3. Select the **SENS LT56IDW Modem** in the Diagnostics tab and then click **More Info...** button.
4. The modem is properly installed if the contents of Command and Response appear in the More Info... window.

Modem Commands

The Modem includes the basic commands used by the Smart Modem of the Hayes Corporation. Some additional commands have been added to it to improve its capacity.

What are AT Commands?

AT commands are the control commands of Fax modems developed by the Hayes Corporation. AT commands are the industry standard and necessary for any fax modem. It is used with the S-register to set the modem status.

Generally, AT commands are used by directly entering the command into any communications program, like Hyper terminal.

You can do the jobs below more easily by using AT commands.

- Calling up or hanging up the phone in order to communicate by Computer modem
- Choosing a modem in order to make the most efficient communication status.

But, as the communication programs are becoming more efficient and more intelligent nowadays, users do not have to know all the AT commands. Only a few basic commands are enough for computer communications.

Before Using AT Commands

AT commands can be used by entering them into terminal-based communication programs directly. (Hyper terminal, CrossTalk, Procomm, etc.)

CompuServe, America On-line applications are not terminal-based communication programs, but they are the communication programs based on a Graphic environment. This kind of program can initiate the modem setting by entering AT commands in a menu having a modem initialization command.

What you have to know before using AT commands is that there are two kinds of modes when you use it.

Command mode:

If you turn on your computer and start communication by a communication program, you can see a prompt on the terminal screen. Under such conditions, you can use AT commands like calling, etc.

DATA mode:

In command mode, you can call by using AT commands and communicate with others by connecting to other modems. You can call this status Data mode or On-line mode.

In data mode, You can't use any AT commands except the +++ command, which has +++ at the head.

If you stop communication and disconnect the phone, the Fax modem will run in command mode again.

Using Command Mode during Communications

Sometimes, you have to use AT command while you're communicating with others via modem. In this case, you can use +++ command for AT command without hanging up your telephone. Pressing '+' three times makes fax modem change to command mode. Of course, the telephone is not disconnected. (Don't press the **Enter** key after input +++)

Connection may be lost depending on the server.

If you want return to Data mode from command mode, you only have to input ATO and press the **Enter** key to start the communications again.

The mode can not be transferred from the command mode to data mode depending on the server.

Using AT Commands

AT commands can be used in the following way. There's no difference between capital letters and small letters, and all commands should include 'AT' as a prefix except ones, which include 'A/' instead.

Also, Carriage Return saved in the S3 register should be entered in order to sign the end of the command.

AT commandPress *Enter* key

Example: ATDT 123-4567Press *Enter* and the modem dials to 123-4567

Display the result value

After entering AT commands, the result value is displayed on the screen.

The result value can be displayed during communication. Generally, the result will be *OK*. According to the ATV command, the result can be displayed as Words or numeral letters. (ATV0: Display as numeral letters, ATV1: Display as English words)

Basic AT Commands

A/	Repeats the previous command in the buffer
ATA	Responds manually to incoming RING signals
+++	Switches from on-line mode to command mode
ATO	Switches from command mode to on-line mode
ATEn	Echo control
E0	Disables echoing of the commands to the screen
E1	Enables echoing of the commands to the screen
ATDT phone number	Touch tone dial
ATDP phone number	Pulse dial
ATHn	Hook control
H0	On-Hook (same as hang-up)
H1	Off-Hook (same as hold-on)
ATLn	Modem speaker loudness control
L0~1	Low volume
L2	Medium volume
L3	High volume
ATMn	Modem speaker control
M0	Disables modem speaker
M1	Enables only when in connection procedure
M2	Enables always
M3	Enables until carrier has been detected after connection
ATS0=n	Sets S0 register value (n range: 0~255). Sets the number of incoming ring signals before answering. Modem responds after ringing as many times as specified in n value. If the value of n is '0', ATA command should be entered for auto answer
ATS0?	Displays S0 register value on the terminal
ATX3	Dials after waiting for specified time

ATX4	Dials after dial tone is detected
ATZ	Initializes modem
AT&F	Loads the factory default configuration (profile)
AT&V	Shows current configuration
AT&W	Saves user profile
AT&Zn=x	Stores the dial string in modem memory (n=0~3, x=phone number) e.g.) AT&Z0=1235678
	Automatically calls the stored phone number by using the following command.
	ATDTS0Recalls the stored phone number as AT&Z0 by tone dial
	ATDPS0Recalls the stored phone number as AT&Z0 by pulse dial
AT+MS=X	Sets protocol for modem connection
	(X=V90, V34)
	AT+MS=V90 (default setting)
	Try to connect with V.90 (max 56 Kbps)
	AT+MS=V34
	Try to connect with V.34 (max 33.6 Kbps)

Windows Me LAN Driver (Re)Installation

Before you begin verify that the “Samsung SEM-2100iL MiniPCI LAN Adapter” is installed otherwise you will have to install it.

LAN Driver (Re)Installation

Windows Me has its own PCI Ethernet Adapter driver, simply install the LAN driver according to the instructions below.

1. **Start** > **Settings** > **Control Panel.**
2. Double-click icon.
3. Click the **Device Manager** tab.
4. Double-click **Network Adapters** in the list area.
5. Click the “Samsung SEM-2100iL MiniPCI LAN Adapter”**.**
6. Click **Update Driver** in the **Driver tab**.
7. Select **Specify the location of the driver (Advanced)**
8. Click **Next**.
9. Select **Display a list of all the drivers in a specific location, so you can select the driver you want.**
10. Click **Next**.
11. Click **Have Disk**. (Insert the Recovery CD in the CD Drive)
12. Type “D:\Driver\Combodrv\Landrv\WinMe” in the “Copy manufacturer’s files from:”
13. Select the “Samsung SEM-2100iL MiniPCI LAN Adapter”
14. Click **OK**.
15. Verify the “Samsung SEM-2100iL MiniPCI LAN Adapter” is displayed on the device wizard.
16. Click **Next**.
17. Click **Finish**. (Windows has finished (re)installing an updated driver for your hardware device)
18. Click **Yes**, to restart your computer and complete the driver (re)installation.

Windows Me Sound Driver (Re)Installation

When you add a new sound device Windows Me will recognize the addition of *PCI Multimedia Audio Device* and start the driver (re)installation process automatically. This also applies to reinstallation if problems occur.

Sound Driver (Re)Installation

When Windows ME automatically detects a 'PCI Multimedia Audio Device', click **Next** and **Finish**.

1. Insert the **System Software** CD-ROM.
2. Click **Start** > **Settings** > **Control Panel**.
3. Double-Click **System** icon.
4. Choose **Device Manager** tab.
5. Select **Sound**, **Video** and **Game controller** and **ESS Allegro PCI Audio (WDM)**.
6. Click **Properties**.
7. Click **Update Driver**.
8. Select **Specify the location of the driver (Advanced)**
9. Click **Next**.
10. Check **Specify a location** and type **D:\Audio\Winme**
11. Click **Next**.
12. Click **Next** when the dialog appears saying that Windows is now ready to (re)install the driver.
13. Click **OK** when the dialog appears saying that Windows has finished installing.
14. Restart the system to update your files.

Changing the Video Driver

It is possible that you may want to update your video driver or that your installed video driver has become corrupt so that the display is unusable.

Windows Me Reinstallation

If your system crashes and you have to reinstall Windows Me you will have to reinstall the S3 Savage IX Video Driver.

To reinstall the driver complete the following steps.

1. Insert **System Software CD-ROM** to CD-ROM drive.
2. Click **Start** > **Settings** > **Control Panel**.
3. Double-Click icon.
4. Click **Settings** >**Advanced** in **Display Properties**.
5. Click **Adapter** tab
6. Click **Change,** The Update Device Driver Wizard window appears.
7. Select **Specify the location of the driver [Advanced]**
8. Click **Next**
9. Select **Specify a location** and input “D:\Driver\Graphics\WinME”.
10. Click **Next**
11. Click **Next**
12. Restart your system.

Specifications

Table 7 gives the specifications for your slim notebook computer.

Table 7. Hardware Specifications

Dimension	
LCD viewing area	12.1"
System	27.3 mm(w) x 22.7 mm(d) x 21-24.3 mm(h)
Docking	27.4 mm(w) x 23.0 mm(d) x 25-27 mm(h)
Total Weight	2.4~2.5 Kg

Environment	
Ambient temperature, operating	50^{o}–90^{o} F (10^{o}–32^{o}C)
Ambient temperature, storage	23^{o}–104^{o} F (-5^{o}–40^{o} C)
Relative humidity (noncondensing), operating	20–80%
Relative humidity (noncondensing), storage	5–90%
Altitude, operating	0 to 8,000 ft (0 to 2,348 m)
Altitude, storage	0 to 40,000 ft (0 to 12,192 m)
Shock, operating	10 G for 11 ms half sine
Shock, nonoperating	60 G for 11 ms half sine

Lithium-Ion Smart Battery	**Long Life**	**Standard**
Normal Weight	420g	200g
Nominal open circuit voltage	7.4 VDC, 7200 mAh	7.4 VDC, 3300mAh
Capacity, typical	53.28 whr	24.42 whr
Charging time, approximate, with computer turned off, typical	~4.0 hr	~1.5 hr
Charging time, approximate, with computer turned on, typical	~8.0 hr	~3.0 hr
Average battery life, with no power management enabled	~5.0 hr	~2.0 hr

External AC Adapter	
Operating voltage	100-240 VAC
Line frequency	50-60 Hz
Input current	1.2 A 100 VAC ~ 0.6 A 240 VAC
Output current	3.2 A
Output voltage	12.0 VDC

Abbreviations

Your computer's documentation uses the following abbreviations:

A . . . . . Amperes

AC . . . . . Alternating current

ACPI . . . . . Advanced Configuration and Power management Interface

APM . . . . . Advanced Power Management

ATA. . . . . AT attachment (refers to the hard-drive interface in an AT-compatible computer)

ATAPI. . . . . AT attachment packet interface

BBS . . . . . Bulletin board system

BIOS . . . . . Basic input/output system

C . . . . . Centigrade

CD . . . . . Compact disc

CD-ROM . . Compact disc read-only memory

cm . . . . . Centimeters

COM . . . . . Communication (as in communication port)

CMOS . . . . . Complementary metal-oxide semiconductor

DC . . . . . Direct current

DMA . . . . . Direct memory access

DPMS . . . . . Display power-management signaling

DRAM. . . . . Dynamic random access memory

DSTN . . . . . Double layer super twist nematic

ECP . . . . . Extended capabilities port

EPP . . . . . Enhanced parallel port

F. . . . . Fahrenheit

FIR . . . . . Fast infrared

ft. . . . . . Feet

g . . . . . gram

G . . . . . Gravity

GB . . . . . Gigabytes

hr . . . . . hour

Hz . . . . . Hertz
IDE . . . . . Integrated drive electronics
in . . . . . Inches
I/O . . . . . Input/output
IrDA . . . . . Infrared Data Association
IRQ . . . . . Interrupt request line
ISA . . . . . Industry Standard Architecture
KB . . . . . Kilobytes
kg. . . . . Kilograms
LAN. . . . . Local-area network
lb.. . . . . Pounds
LBA. . . . . Logical block addressing
LCD. . . . . Liquid-crystal display
m . . . . . Meters
mA. . . . . Milliampere
mAhr. . . . . Milliampere hour
MB. . . . . Megabyte
mm . . . . . millimeter
MPEG . . . . . Motion Picture Experts Group
MPU . . . . . Microprocessor unit
ms . . . . . Millisecond
PDF . . . . . Portable document format
PC . . . . . Personal computer
PCI . . . . . Peripheral component interconnect
PCMCIA. . . Personal Computer Memory Card International Association
POST. . . . . Power-on self-test
PNP . . . . . Plug and play
PS/2 . . . . . Personal System/2
RAM . . . . . Random-access memory
ROM . . . . . Read-only memory
SVGA . . . . . Super video graphics array
S-VHS . . . . . Super VHS
TFT . . . . . Thin-film transistor

USB . . . . . Universal serial bus
V . . . . . Volt
VAC . . . . . Voltage alternating current
VCC . . . . . Voltage collector current
VDC . . . . . Voltage direct current
whr . . . . . Watt hour

Glossary

AC adapter

The AC (or alternating current) adapter regulates current coming into your computer from the wall outlet. The current at the wall outlet is alternating current and needs to be changed by the adapter to DC (direct current) before your computer can use it for power.

ACPI

ACPI (Advanced Configuration and Power Interface)- a method for describing hardware interfaces in terms abstract enough to allow flexible and innovative hardware implementations and concrete enough to allow shrink-wrap OS code to use such hardware interfaces.

BIOS

BIOS stands for basic input/output system. The BIOS is software (often called firmware) that is independent of any operating system. It enables the computer to communicate with the screen, keyboard, and other peripheral devices without using programs on the hard disk.

The BIOS on your computer is flash BIOS, which means that it has been recorded on a flash memory chip that can be updated if needed.

Boot

To start your computer. A cold boot resets the entire computer and runs through all computer self-tests. A warm boot clears out computer memory only.

Boot disk

A disk containing operating system programs required to start your computer. A boot disk can be a floppy disk, hard drive, or compact disc.

Byte

The basic unit of measure for computer memory. A character—such as a letter of the alphabet—uses one byte of memory. Computer memory is often measured in kilobytes (1,024 bytes) or megabytes (1,048,576 bytes).

Each byte is made up of eight bits. For more information on bytes and bits, see an introductory book on computers.

Cache memory

Cache is very fast, zero-wait-state memory located between the microprocessor and main memory. Cache reduces the average time required by the

microprocessor to get the data it needs from the main memory by storing recently accessed data in the cache.

CardBus

CardBus technology enables the computer to use 32-bit PC Cards. Hardware in the computer and the Windows operating system provide support for the 32-bit cards. The voltage of 32-bit cards (3.3 volts) is lower than that of 16-bit cards (5 volts). The 32-bit cards can transmit more data at a time than the 16-bit cards, thus increasing their speed.

CMOS memory

CMOS (complementary metal oxide semiconductor) memory is powered by the CMOS battery. The System Setup settings and other parameters are maintained in CMOS memory. Even when you turn your computer off, the information in CMOS memory is saved.

COM port

COM stands for communication. COM ports are the serial ports in your computer.

Compact Disc

A compact disc (CD).

Conventional memory

The first 640 KB of system memory. Operating systems and application programs can directly access this memory without using memory-management software.

Disk

The device used by the computer to store and retrieve information. *Disk* can refer to a floppy disk, hard disk, or RAM disk.

Disk cache

A software device that accumulates copies of recently used disk sectors in RAM. The application program can then read these copies without accessing the disk. This, in turn, speeds up the performance of the application.

A cache is a buffer for transferring disk sectors in and out of RAM. Data stored in a disk cache is a copy of data already stored on the physical disk.

DMA (direct memory access)

A method of transferring data from a device to memory without having the data pass through the microprocessor. Using DMA can speed up system performance.

DPMS

Display Power Management Signalling. Displays or monitors that comply with this can be managed by the Power Management features found in the system setup.

Floppy disk

A removable disk, also called *floppy* or *diskette*.

Hard drive

Also called *fixed* disk. A hard drive is connected to the computer and can be installed or removed. Data written to a hard drive remains until it is overwritten or corrupted.

The 2.5-inch hard drive in your computer was designed for use in a notebook computer. Because hard drives in notebook computers are smaller than those in desktop computers, their maximum storage capacity may be less than that of desktop hard drives. However, because of their smaller size, the drives handle shock and vibration better than larger drives, which is important for a notebook computer.

I/O

Input/output. Refers to peripheral devices, such as printers, that are addressed through an I/O address.

I/O address

I/O stands for input/output. Peripheral devices, such as printers, are addressed through the I/O port address.

IRQ (interrupt request line)

The IRQ is a hardware line that a device uses to signal the microprocessor when the device needs the microprocessor's services. The number of IRQs is limited by industry standards.

LCD (liquid-crystal display)

The LCD screen on your computer differs from the display screen of a desktop monitor. Most desktop monitors use CRT (cathode-ray tube) displays, which work by moving an electron beam across phosphor dots on the back of the screen. The phosphor dots light up to show the image. LCDs use a liquid-crystal solution between two sheets of polarizing material. Electric current passing through the liquid aligns the crystals so that light can or cannot pass through them, creating an image.

MB (megabyte)

1,024 kilobytes.

Megabit

1,048,576 bits or about 128 kilobytes.

Operating system

A program that supervises the computer's operation, including handling I/O. Application programs and users can request operating-system services. A user might request operation-system services to copy files or format a disk. An application program might use the operating system to obtain keyboard input, write data to a file, or write data to a screen.

PC Card

PC Card stands for personal computer card. The Personal Computer Memory Card International Association (PCMCIA) defines the standards used to develop all PC Cards. PC Card types include: modems, Ethernet adapters, SCSI adapters, ATA cards, and memory cards.

PC slot

The PC slot is the hardware slot in the computer where the PC Card is placed.

Pixel

A pixel is an individual dot in a graphic displayed on your computer. The pixels are so close together that they look as though they are connected. An LCD screen displays thousands or millions of pixels.

Plug and Play

A plug and play operating system automatically configures computer components to work with your system. With this type of operating system, you normally do not need to set jumpers on devices or set memory addresses or IRQs.

RAM (random access memory)

The computer's system memory, including conventional and extended memory. You can write to and read from RAM. Information stored in RAM is temporary, and is erased when the system is turned off.

Refresh rate

The refresh rate is the rate at which the image on the LCD screen is rewritten to the screen. A fast refresh rate helps keep the image from flickering.

Resolution

The resolution is the sharpness or clarity of the image on your LCD screen. Resolution is measured by the number of pixels the computer's screen can display. For example, a resolution of 800x600 means that the screen can display 800 pixels in row and can display 600 rows. The more pixels displayed, the higher the resolution and the better the image.

ROM (read-only memory)

Permanent computer memory dedicated to a particular function. For example, the instructions for starting the computer when you first turn on power are contained in ROM. You cannot write to ROM. (ROM is not the same as RAM).

Sector

Also known as *disk sector*. The portion of a track that is numbered and can hold a specified number of characters (usually 512 KB).

Shadow RAM

A write-protected area of RAM that contains a copy of the BIOS. As the computer boots, the BIOS is copied from its permanent location in ROM to RAM. The BIOS can be executed much faster in RAM than in ROM. The BIOS remains in shadow RAM until you turn off the computer.

TFT (thin film transistor) LCD

A TFT LCD uses a separate transistor circuit to control each pixel. This technology provides the best resolution for an LCD screen. A TFT LCD is also sometimes called an active matrix LCD.

Zoomed video

Zoomed video technology enables zoom video PC Card to transfer data directly from the card to video and audio systems without going through the microprocessor. This process improves video performance. Video conferencing and real-time multimedia devices, such as video cameras, are supported by zoom video.